The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

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MINES INSPECTED.

BANKERS: CITY BANK, LONDON; SOUTH CORNWALL BANK, ST. AUSTELL.

SPECIAL DEALINGS in the following, or part:—

75 Aberdaunant.	30 Holmbush, offer wtd.	40 Port Phillip, 10s.
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10 Combmartin, 3s. 9d.	50 Javali, 7s.	10 Roman Grav., £85/8.
20 Condes of Chili, off. w.	25 Leadhills, £4.	30 St. Harmon.
40 Derwent, 25s.	50 Llanrwst, £2½.	50 St. Bride's Slate, £2.
20 Devon Cons., £2 15s.	30 Llan Gan, £3.	150 So. Rom. Grav., 2s.
30 East Van, £5 5s.	10 Minera, £12.	15 Tankerville, £3½.
50 Exchequer, 3s.	30 N. Quebrada, 30s.	20 Van Consols, 10s.
25 Flagstaff, 15s.	20 N. Zea. Kapan., 13s 9d	25 W. Tankerville, 14s.
30 Glyn, 10s. 6d.	60 North Laxey, 4s.	40 ditto Preference, 25s.
20 Glenroy, 17s. 6d.	40 Pandora.	10 W. Chiverton, £13.
5 G. Laxey, £20¼.	50 Penstruthal, 5s, 3d.	10 W. Wye Valley, £3½.
10 Halcomb Sack, £3½.	50 Pestarena, 5s.	15 Wye Valley, £2.
	100 Parys Moun., 9s. 6d.	

*** SHARES SOLD FOR FORWARD DELIVERY (ONE, TWO, OR THREE MONTHS) ON DEPOSIT OF TWENTY PER CENT.

D'ERESBY MOUNTAIN AND D'ERESBY CONSOLS.—SPECIAL BUSINESS in these SHARES.
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FOREIGN BONDS—ARGENTINE—EGYPTIAN—RUSSIAN, TURKISH, SPANISH, PERU, &c.
SPECIAL BUSINESS in the above, and Fortnighty Accounts opened on receipt of the usual cover.
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RAILWAYS—HOME AND FOREIGN.—SPECIAL BUSINESS in the above, and Fortnighty Accounts opened on receipt of the usual cover.
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MISCELLANEOUS.	CHEMICAL.	TRAMWAYS.
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Purchases and Sales negociated in Unmarketable Stocks and Shares.
Speculative Accounts opened for the Fortnightly Settlement.
References given and required when necessary.
A Stock and Share List forwarded free on application.

MR. BUMPUS has SPECIAL BUSINESS in the undermentioned:—

25 Assheton, 18s. 6d.	25 Frontino.	10 Pateley Bridge, £3½.
50 Aberdaunant.	70 Glenroy, 16s. 6d.	50 Penstruthal, 5s. 9d.
30 Blue Tent, £2¾.	5 Great Laxey, £20⅝.	20 Roman Grav., £8⅜.
25 Caron, £2 7s. 6d.	10 Grogwinion.	15 Richmond, £9 13s. 9d
70 Chontales, 12s.	25 Hultafall.	50 Rookhope, 18s. 6d.
15 Chapel House.	70 I. X. L., 3s.	75 So. Roman Grav., 3s.
40 Cambrian, £2½.	40 Javali, 7s.	25 St. Harmon.
50 Chicago.	50 Kapanga, 14s.	15 Tankerville, £3 18s. 9d
25 Devon Con., £2 18s. 9	20 Llanrwst.	50 Tyn-y-Fron,
50 Derwent.	30 Last Chance, 16s.	10 Van, £25¼.
60 Don Pedro, 12s. 6d.	15 Leadhills, £3⅜.	30 W. Tankerville, 14s.
15 East Van, £4½.	50 Marke Valley.	25 Wh. Grenville, £3¼.
100 Exchequer, 3s. 6d.	30 New Quebrada, 34s 6d	20 West Pateley Bridge,
10 Eberhardt, £6.	40 North Laxey, 4s. 3d,	£2 1s.
50 East Caradon.	60 Pestarena.	15 Wye Valley,
40 Flagstaff, 16s.	25 Port Phillip, 11s. 6d.	40 West Assheton, 13s.
	50 Parys Mount., 9s. 6d.	

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D'ERESBY MOUNTAIN.—Careful attention should be paid to the report in this week's Journal. Business negociated in the shares.
D'ERESBY CONSOLS.—These shares are going higher. Application should be made at once where an interest is desired.
SPECIAL BUSINESS in Llanrwst, Alamillos, West Wye Valley, Caron, Devon Consols, Minera, Eberhardt.
COLLIERIES.—Thorp's Gawber, Newport Abercarn, New Shariston, Alltami, Cardiff and Swansea, Chapel House, Pelsall.
MISCELLANEOUS.—General Credit, Royal Aquarium, Yarmouth Aquarium, Brighton Aquarium, Hudson Bay, Otago Investment, Diamond Rock.
FOREIGN BONDS.—Egyptian Preference, ditto Unified, Columbian, Bolivian, Turkish 1871, ditto 1865. A large business for fortnightly settlements is being done in several of these.

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Edited by—
ALFRED E. COOKE, 76, OLD BROAD STREET, LONDON.

D'ERESBY MOUNTAIN.—These Shares were recommended by Mr. COOKE at £30. The price is now nearly £80. They will STILL GO HIGHER.
D'ERESBY CONSOLS.—Shares should be immediately purchased, and may be had on best terms.
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Aberdaunant.	Pandora, 15s.	White Cliff.
Chapel House, £3.	Parys Mountain, 9s. 6d.	Chontales, 11s. 9d.
D'Eresby Consols.	Pateley Bridge, £2⅞.	Don Pedro, 12s.
Derwent, 25s.	Penstruthal, 5s.	Eberhardt, £6.
East Van, £5⅛.	Roman Grav., £8¼.	Flagstaff, 15s.
Grogwinion, £3⅝.	Rookhope, 18s. 3d.	Frontino, 32s. 6d.
Glenroy, 15s. 6d.	South Cwmystwith.	Hultafall, £4¼.
Great Laxey, £20¼.	Tankerville.	Last Chance, 16s. 6d.
Gorsedd.	Tyn-y-Fron.	N. Zealand Kap., 13s.
Leadhills, £3⅞.	Van, £25.	Port Phillip, 10s. 6d.
Llanrwst, £2¼.	Wye Valley, 38s. 9d.	Richmond, £9¾.
Monydd Gorddu.	West Wye Valley, £3⅜.	South Aurora.
North Laxey, 4s.	Wh. Grenville, £3.	Tecoma, 3s. 6d.

Carn Brea, D'Eresby Mountain, Devon Consols, Dolcoath, Mellanear, Minera, South Molton Consols, Wheal Crebor, West Godolphin, Wheal Kitty.—Almada, Argentine, Chicago, Hornachos, Javali, Malabar, South Aurora, Tolima.
COLLIERIES.—Alltami, Chapel House, New Shariston, and Thorp's Gawber.
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	Buyers.	Sellers.		Buyers.	Sellers.
Carn Brea	£ 44	£ 46	New Quebrada	£ 1¼	£ 2
Caron	2	2½	New Zealand Kapanga	10s.	15s.
Chontales	10s.	12s.6d.	Panulcillo	1	1¼
D'Eresby	70	80	Parys Mountain	8s.	10s.
Devon Great Consols	2½	3	Pateley Bridge	2¾	3
Don Pedro	10s.	11s.	Penstruthal	4s.	6s.
Eberhardt	5⅞	6½	Plynlimmon	5s.	7s.
East Caradon	9s.	11s.	Richmond	9¼	10
East Van	4⅛	4¾	Roman Gravels	8¾	8⅛
Exchequer Gold	3s.	4s.	Rookhope	17s.	19s.
Flagstaff	14s.	16s.	South Caradon	80	85
Frontino	1¾	2	South Condurrow	11	11½
Glenroy	14s.	16s.	Tankerville	3½	3⅝
Gorsedd and Merlyn	4	4½	Tincroft	11½	12½
Grogwinion	3½	4	Van	23	25
Great Laxey	20	21	West Chiverton	12½	13½
Hultafall	4	4¼	West Pateley Bridge	1¾	2¼
Herodsfoot	7	8	West Godolphin	1	1¼
Hingston	7s.	9s.	West Tankerville	10s.	12s.6d
Last Chance	14s.	16s.	West Wye Valley	3	3½
Ladywell	15s.	17s. 6d.	W. Grenville	3	3⅛
Leadhills	3¾	4	Wheal Kitty	1¾	2¼
Marke Valley	10s.	12s. 6d,	Wye Valley	1½	2
North Laxey	3s. 6d.	4s. 6d.	Yorke Peninsula	5s.	6s.

Selections, founded on practical mining knowledge, made for the use of investors. An experience of 20 years.—Business on hand in East Van, Roman Gravels, Leadhills, Gorsedd and Merlyn, Tyn-y-fron, and other Lead Mines.
A good report has been received from Hultafall.

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50 Aberdaunant.	30 Frontino, £1 17s. 6d.	50 Parys Mount., 10s.
50 Bodidris.	40 Flagstaff, 14s. 6 1.	100 Penstruthal, 5s. 6d.
30 Birdseye Creek, 18s 9d	20 Gorsedd & Merll., £4⅛	50 Port Phillip, 11s. 6d.
25 Cardiff and Swansea, £3 17s. 6d.	20 Great Laxey, £20 15s	25 Rookhope, 18s. 6d.
	10 Grogwinion £3 15s.	10 Richmond, £9 17s. 6d
50 Chontales, 12s.	25 Glenroy, 16s.	15 Roman Grav., £8 13 9
40 Cambrian, £2 17s. 6d.	20 Hultafall.	25 Tankerville, £3 12s 6d
20 Chapel House, £3 2 6	25 Last Chance, 16s. 6d.	100 Tecoma, 4s.
25 Caron, £2 7s. 6d.	15 Ladywell, 18s. 3d.	30 Tyn-y-Fron
30 Condes of Chili, 10s. 6	25 Leadhills, £3 17s. 6d.	5 Van, £24 10s.
50 Don Pedro, 12s. 6d.	30 N. Quebrada, £1 17s. 6	20 W. Tankerville, 14s.
20 Devon Con., £3	50 Nth. Laxey, 4s.	80 Yorke Penin., 5s. 6d.
2 D'Eresby, £76.	5 Minera, £11 10s.	25 West Godolphin, 27 6
20 East Van, £5 12s. 6d.	75 Pestarena, 5s. 3d.	20 W. Grenville, £3 3s 9

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40	BODIDRIS	LEAD.	
3	CARN BREA	TIN.	
1	DOLCOATH	do	
15	EAST CRAVEN MOOR	LEAD.	
50	EAST CHIVERTON	do	
20	EAST VAN	do	
100	GLENROY	do	
10	GREAT HOLWAY	do	
4	GREAT LAXEY	do	
20	LLANRWST	do	
20	HULTAFALL	do	
30	LOVELL	TIN.	
100	MEDLYN MOOR	do	
150	NORTH LAXEY	LEAD.	
50	PARYS MOUNTAIN	COPPER.	
100	PRINCE OF WALES	do	
20	PANDORA	LEAD.	
50	PENNERLEY	LEAD.	
100	ROOKHOPE	do	
15	ROMAN GRAVELS	do	
50	RED ROCK	do	
20	SO. CWMYSTWITH	do	
15	ST. HARMON	do	
20	SOUTH CONDURROW	TIN.	
10	TANKERVILLE	LEAD.	
60	VAN CONSOLS	do	
5	WEST WYE VALLEY	do	
50	WHEAL AGAR	TIN.	
20	WEST CRAVEN MOOR	LEAD.	
25	WEST CHIVERTON	do	
25	WHEAL JANE	TIN.	
100	WHEAL CREBOR	COPPER.	
20	WHEAL GRENVILLE	do	
10	WHEAL PEEVOR	TIN.	

N.B.—Some of the above will be sold on specially favourable terms to cash purchasers.

GROGWINION LEAD MINE (LIMITED).
MESSRS. H. HALFORD AND CO., STOCK AND SHARE BROKERS, of EXCHANGE CHAMBERS, CHANGE ALLEY, LOMBARD STREET, strongly recommend the above mine as one of the best and safest mining investments. Dividends are paid half-yearly. The mine has lately very much improved in the deepest workings, and the sales for the present month are 150 tons of lead.
WYE VALLEY, WEST WYE VALLEY, RED ROCK, AND SOUTH CWMYSTWITH LEAD MINES.
These mines have all recently improved very much, and large sales of lead are being made. Shares in all of them should be secured at once.
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Subscribed Capital £16,000 (all subscribed in a few days).
This company is likely to prove one of the greatest successes of modern times. The mine is now in full work, good Reserves of Lead laid open, and sales will commence as soon as the new dressing machinery is completed. The shares are we consider, likely to greatly increase in value in a very short time.

FOR SALE, the WHOLE or PART:—

200	CAMBRIAN	£ 2 10 0	
30	GROGWINION	3 10 0	
10	D'ERESBY CONSOLS	12 10 0	
20	GORSEDD & MERL.	£ 4 10	
5	D'ERESBY MOUNT.	60 0	
4	LISBURNE	55 0	

WANTED TO BUY, the WHOLE or PART:—

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100	TYN-Y-FRON	1 7	

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CLAUSTHAL MINING SCHOOL NOTES.—No. LXVII.*

BY J. CLARK JEFFERSON, A.R.S.M., WH. SC.,

Certificated Mining Engineer.

(Formerly Student at the Royal Bergakademie, Clausthal).

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SECTION V.

The use of the adze does not appear to be so common on the Continent as in England, if we except the so-callad hollowing adze and the channelling adze. The former is used principally for cutting curved surfaces, or faces which would be got at with more difficulty by the use of the axe. The channelling adze is rounded in the cross section, so that it can be readily used for hollowing out spouts, wooden pipes, and the like.

A scarcely less important tool to the mine carpenter is the saw. This, in consequence of the comparatively confined space in which it can be used, is shorter than that of an ordinary carpenter. One of the most useful kinds of saws for use underground is that known as the bridle saw, and extensively used in the Saxon and Bohemian mines. This consists of a straight rectangular saw blade, which towards each end has a short cross pin through the blade. The handle or strap of the saw is made by binding a round piece of ash or pine into a semicircle, and cutting the two ends, so that a narrow nick is formed, in which the blade of the saw can be inserted for about three-fourths of its depth. A small notch is formed at each end of the strap, in which the cross pins fit, and prevent the straightening of the strap. The handle of the strap saw is sometimes made of iron, the ends of which are enlarged, and provided with a hole through which the screws (in which the ends of the saw blade terminate) pass. A couple of nuts pass over the screw ends of the saw blade, by means of which the blade is stretched tightly between the strap. The only advantage possessed by an iron strap is that it lasts longer than a wooden one; the latter, however, can be instantly detached from the saw blade by slightly compressing the strap, and is, moreover, much handier when in use. For sawing thick timber the cross cut saw is used. This usually consists of a larger and longer blade (about 4ft. long and 6 in. high). Sometimes the blade is perfectly rectangular, at other times the upper smooth edge only is straight, the lower toothed edge being curved, and bellying out in the centre; whilst in the Hartz mines both the upper and lower edges are curved about the same centre. The saw is worked by two persons pulling alternately at each end, and hence called a pulling saw. The handles are sometimes bolted to the ends of the saw blade, and at other times the ends are formed thicker, and have long vertical holes, in which two round pieces of wood can be inserted, which serve as handles. The cross cut saw is somewhat large and heavy for underground use, but is much more used than the simple hand saw, though the latter is extremely convenient for use in confined spaces. The hand saw varies between 24 in. and 30 in. in length, the depth tapering from 4 in. or 5 in. near the handle down to 2 in. or 2½ in. at the extreme end. In Westphalian and most German mines the handle consists of a piece of round wood, fitted with its axis in the direction of the length of the saw blade, instead of a grip, as is usual in this country. The hand saw bears the name pushing saw in Germany, since the work is really performed by pushing towards the saw. Besides the above the mine timberman requires many tools common to those of an ordinary carpenter, which call for no further description.

There are many cases, such as the fixing of timber in underground engine or water wheel houses, in which it is necessary to level and plumb the timber as it is set. The simplest form of plummet is that of an isosceles right angled triangle, made of well seasoned wood. The long slit in which the plumb line lies is at right angles to the base, the lower end of the slit terminating in a round hole, in which the plumb-bob hangs when the plummet is placed vertically. Where the work to be executed requires a large plummet this is generally made in frame work, the base of which may be from 6 ft. to 9 ft. long.

For obtaining the exact length of timber required between two prepared surfaces a measuring lath is often used. This consists of two long narrow laths, which are sufficiently strong or stiff enough for the purpose, and which are so connected that they can slide over each other, and by marking the distance to which they overlap when in contact with the two faces the distance between these can be reproduced at any time by overlapping the two laths to the extent marked. When convenient the two laths may be held in this position by means of a small iron strap with a press screw.

In arranging a set of timbering for any place not only should care be taken to measure previously as near as possible the exact lengths and dimensions, so as to prevent unnecessary labour in dressing the wood in the mine and waste of material, but the most suitable strength or thickness of timber should be adopted. If the direction and amount of pressure on any piece of timbering could be estimated there would be no great difficulty in fixing upon the proper size. In but very few cases, however, can this be done, since the pressures in the first place result from the weight of an unknown amount of strata. This weight pressing upon any sets of timbering will be modified by the cohesion of the rock masses, by the presence of cracks or clefts, which may cause side pressures where none are expected, or loosen masses which the miner may suppose are supported by the natural cohesion of the rock. The presence of water might loosen the strata, or cause it to swell, and in the latter case exert a pressure which no amount of timbering is able to withstand. The original strength of timber will in places in which it is liable to rot soon be considerably weakened, so that to avoid the expense of a frequent changing of the timber it is usual to insert it of a much greater strength than that supposed absolutely necessary. Only in the case of water, and of stemples for supporting the attle which is thrown behind or on to scaffolding, can any rule be laid down for the strength of the timbering. Generally speaking, however, the principal timbers have a diameter varying between 7 in. and 9 in.

The following principles with respect to timbering in a mine may be laid down:—

1.—The most important is the principle that wherever possible the timber should be used in undiminished dimensions, without saw or other cuts—as round wood, which neither for the sake of joints or otherwise requires cutting. The ordinary cylindrical form is that which possesses the greatest strength, and it must be remembered that whatever cutting the timber undergoes its strength is thereby greatly diminished; and, besides, ordinary round timber presents none of those liabilities to rotting which ensue in the case of timber with a great many rough surfaces. The cutting for the joints of timbering should, therefore, be dispensed with as much as possible; and as all sets of timber should be so arranged as to be fitted and driven tight into position under a certain amount of strain, round timbering ought to be laid in position without cutting, and held tight in position and under some strain by means of wedges and the like driven up with the sledge hammer.

2.—Every sort of timbering should be so arranged that they oppose directly or in a direct line the pressure of the strata. Thus in inclined seams the props set to support the roof should be placed not plumb but perpendicular to the roof and floor of the seam, and in lodes, &c., at right angles to the walls of the lode. In many cases it might happen that to place a stemple or prop directly in the centre line of pressure would be to place it in a position extremely inconvenient for travelling, or in case of a shaft for winding. It is, therefore, in very many cases more usual to take the pressure on to the supports not from the rock itself but from a long bar placed at right angles to the centre line of pressure. By this means the pressure is not received by a support on one point only, but is pretty equally divided over a larger area. Although in many cases such a long lid, or cap, might be advantageously supported by a single prop or stemple, yet in most cases the lid would be supported by two props, one at either end. This certainly would be the best arrangement in cases where the pressure is equally divided on both sides of the cap; where, however, the lid is very unequally loaded, then to ensure a corresponding strength of resistance at the two ends the prop at that end near which the principal line of pressure acts should have an increase of strength corresponding to the distance of the centre line of pressures from the centre line of the cap.

3.—The number of sets of timbering should be as few as possible consistent with sufficient strength; or, what follows, that the various sets should be placed as far apart as the existing conditions will admit of. The principal conditions affecting the possibility of placing the sets far apart are the character of the roof or sides to be supported, and the suitable limit in the dimensions (diameter, &c.) of the timber. Where it is impossible to let the timbering into the sides and roof, or floor, the available dimensions of the shaft or level will be very much lessened where timber of a large diameter is used. Where this lessening is not of much importance, and the strata sound and compact, the different sets can be placed at some considerable distance apart. In the case of comparatively loose or broken strata it will be found necessary to place the sets of timber closer together, else it might readily occur that a portion of strata loosened from the surrounding strata by clefts or cracks would be entirely unsupported, or only supported in an inefficient manner at one side. With an increase of the loose character of the ground, or of clefts or cracks, the timbering will require to be placed closer together, and where this reaches a maximum the sets will require placing close together, or lined with boards. In such cases the strength of the single sets will not necessarily be so large as where they can be placed further apart.

4.—Where possible the length of the props and stemples should be taken as short as possible, since a short prop can resist a greater pressure than a long one of the same section. It is also for this reason that where not otherwise required by local conditions, as sufficient area for ventilation or conveyance, it is better to make the dimensions of any underground excavation as small as possible, and the larger the empty space so much stronger must the separate timbers be made.

5.—All empty spaces between the timbering and the rock should be avoided; and, therefore, the timber should be placed quite close against the sides and roof. The object of this is twofold. Were spaces left sufficient to allow of any portion of the rock slipping over clefts, and the like, not only would there be a liability of the joints between the sets being loosened, but if a portion of the strata takes up a but slightly different position, a total change in the direction of the principal pressures might readily occur, which the design of the timbering was not capable of resisting. And, again, empty spaces, especially if of any size, would give pieces of strata the opportunity of falling against the timber, which though sufficiently strong to bear the simple weight of the mass would inevitably be broken by a fall through but a few inches of the same mass of strata. Hence those spaces which are necessarily left empty on account of the straightness of the principal timbers should be filled tight up with attle packing, so as to cause every portion of the timbers to receive its proper strain, and to prevent any movement of the adjoining strata.

The joints of the various timbers with each other are generally simple surfaces—not necessarily flat—which cover and fit each other exactly. All complicated joints, or which are made of several distinct surfaces such as mortise and tenon joints, are avoided as much as possible, and likewise all connections by means of iron; fastenings, with wooden or iron pins, are likewise for most underground timbering perfectly worthless. The exact shape of any joint will depend on the directions of the stains to which it will be subjected and its relation to adjoining sets of timber. The connection of any single timber with the adjoining strata is always made with wooden wedges, which have also the advantage that by driving them further into position a suitable strain can be thrown on the joints. Indeed, it should always be remembered that the stability of most of these joints is dependent entirely on being placed under proper strains. Of the connection between the timbers and the strata the necessary notching of the strata is almost universal. The spaces cut away for this purpose on the two opposite sides of the ground are relatively called the "Bühnloch" and the "Eintrag," or "Aufall."

The "Bühnloch" is a notch cut in the wall of the lode or side in which one end of the stempel fits, with but very little play; on the opposite side of the lode a notch or ledge must be cut to receive the opposite end of the stemple. This second notch cannot be made like the first of the exact size of the stemple, and a uniform depth all round, otherwise, although the one end might be inserted in the corresponding notch, it would be impossible to introduce the second end. Hence this second notch is usually cut to an arc of a circle with the opposite end of the stemple (that in the "Bühnloch") as centre, and the length of the stemple as radius, so that when one end of the stemple is inserted in the "Bühnloch" the other is gradually lowered in this second notch, which is just wide enough to admit of the end of the stemple being passed downwards in it until the stemple resting on the ledge is in its proper position. This second notch is called the "Eintrag." The details of preparing the "Bühnloch" and the "Eintrag" and the insertion of the stempel will be considered later in their proper place.

The different kinds of timbering we have previously mentioned can be classed under the two chief divisions of simple timbering and compound timbering. It is better, however, in considering this portion of the subject to class the timber according to the purpose for which it is used, and to subdivide each of these classes into two portions as simple and compound timbering. In this manner we shall consider:—

A.—Timbering in levels and working places, and

B.—Timbering in shafts.

* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergrath, DR. VON GRODDECK, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

THE TREATING OF TIN ORES FROM THE SHAFT'S MOUTH TO THE SMELTING HOUSE.

This formed the subject of an interesting paper read on Tuesday by Capt. WM. TEAGUE, of Tincroft and Carn Brea Mines, before the members of the Mining Institute, Camborne. Capt. Josiah Thomas occupied the chair, in the absence of the President.

Capt. TEAGUE commenced by remarking that when the tinstone was discharged from the shaft it was placed in large heaps in slides, called the shaft's mouth, in which place it was overhauled for the purpose of classification, and thus prepared for the stamps by being reduced to the proper size, which, in his opinion, would be such as would pass through a 3-in. ring. The ordinary process for reducing the stuff to this size was ragging and spalling; ragging was done by a man with an 8 lb. or 10 lb. sledge-hammer, and spalling by girls with a 3 lb. hammer, consisting principally of steel, by which means the stuff was reduced to the proper size as mentioned above. To ascertain the value the stuff was commonly divided into eight or more doles of equal quantities, one of which was selected for measurement or weighing. Weighing was to be preferred where great accuracy was wanted. A portion was taken from the middle of the dole for the purpose of getting at the value. Some preferred to mix the dole which was measured or weighed, and then cut it through, taking a portion from the middle for a sample, which latter he preferred. The sample taken was reduced to the finest powders by means of hammers, after which to ascertain the value at per ton a 2-oz. quantity, advoirdupois was taken, or, if by measurement, a quarter of a noggin, for the sack commonly used, and containing 12 gallons, which was then vanned, and the value of each parcel was then ascertained. The cost of thus preparing the tinstuff for sampling, in which state it was fit for the stamps, was, he thought, for the average of the county 5d. per ton, or 4s. 2d. per 100 sacks. There could not be a uniform price for the preparation alluded to owing to the different nature of the stuff raised in the various districts. He was inclined to think that the cost might be reduced by the use of Blake's stone-breaker placed in proper position, but what would be of greater importance was the uniformity of size produced by this machine compared with hand spalling. Hence, in all hard ground mines, where the cost was above the average referred to—5d. per ton—the use of the stone-breaker would be more apparent by the stamping producing a better result. From the stone-breaker the stuff was taken to the stamps, which might be said to be the same in construction as that which had been in use for the last 30 years or more; in fact, the difference between the stamps used at present and the first that came under his notice was very little; the principle being the same he might safely say as good results were obtained in times gone by as they saw that day. As 1 cwt. of coals was reckoned to be sufficient formerly for the stamping of 1 ton of tinstone, it was much the same now on average quality work. Certainly up to that time they had not produced a more efficient machine than that greatly abused, but not improved, old stamps. As regarded the description of stamps, he could not do better than refer them to Mr. John Hockin's paper read on March 27, and to Mr. Matthew Loam's paper on the future stamping, read on Oct. 30. He knew that great prejudice was shown when steam stamping was first introduced, one principal objection being that the heavy head fractured the stone, and prevented the uniformity of size which was thought so necessary for yielding the tin contained in the stuff acted on. Another objection raised was that the grease and oil, &c., dropped into the coffer caused a portion of the tin to float, and consequently to be carried away by the water. This last objection wes the most reasonable, and great care, in his opinion, should be taken to prevent as much as possible the grease or oil falling on the stuff operated on. With regard to the heavy head, there could be no objection. Greater speed in stamping was what was wanted, and this the pneumatic stamps claimed to produce by the introduction of heavier heads. And if greater speed could be obtained, the chance would be in favour of the tin leaving the coffer when at a proper size. It had been thought by many that a trial of the pneumatic stamps would be more satisfactory if made by the side of the old stamps, and by having the same class stuff to stamp. In this he quite concurred, and to show the faith the patentee had in the new stamps, he had consented to erect one at Tincroft at his own expense, to be tested by the side of the old stamps, and worked on the same class stuff as that which now went through the old stamps. Arrangements for the erection of the new stamps were now being made, and no doubt the trial would be watched with great interest. The tinstone treated at the shaft's mouth was not of high percentage, averaging throughout the county less than 2 per cent. for black tin, or about 1s. and 1s. 3d. per cent. for metallic tin. The stuff, after being pulverised and leaving the stamps, should be taken into buddles prepared for its reception. The best he had found for this description of stuff was the conical, with large centre heads of about 12 ft. in diameter. He much preferred this mode of dealing with the stuff to any other, either pits or drags, or smaller head buddles. For the next buddling he recommended the concave, known more commonly under the name of Borlase's buddle; greater speed could be attained by these, and with as good, if not superior, results. The stuff required a series of buddlings, after which it was taken to the tossing kiln, and thence to the calcining house, the calcining being as necessary as the stamps for the removal of all foreign minerals and spurious matter from the tin. The spurious matter being lightened by the action of the fire, and separated from the tin, came under the name of burnt leavings, and should be put through pulverisers, as he believed the action of rubbing produced by them was more economical and effectual than any other treatment he had as yet seen in operation. Buddling, tossing, and framing being carried out as from the stamps head, it might almost be called a manufactory before it entered the tin hutch. As regarded the treatment of slimes, he thought nothing so effective as the frames for untinning the stuff which was reduced to a pulp, hence the difficulty in dealing with it, and the great loss sustained by miners, when lost tin was reproduced by the tin streamers or squatters, who lined the sides of the Red and other rivers. For a proper description of machines required, he recommended a perusal of the diagrams shown in the paper read before the Institute on April 24, 1877, on tin ore dressing. The tin being cleaned was now called black tin, and was deposited in a hutch or house. This was done daily until such time as was thought proper to take it to the smelting-house. The whole cost incurred in bringing the tin from the shaft's mouth to the tin hutch would be about 9l. per ton. This would include the cost of stamping, carriage, coals, and every known charge connected with the stuff caused by the machinery and labour, including the spalling. But this estimate would be rather reduced where convenience existed for the discharge of the sand by washing instead of by casting or tramming. Previous to taking it to the smelting-house, the safest course to obtain a fair sample was to mix it thoroughly in a kieve with water, and pack it dry; this would ensure a uniform sample. It would now be put in sacks, containing from 2½ to 3 cwts. in each sack. To ascertain the produce or yield of metal contained in 20 cwts. of black tin, which they now took to the smelting-house, the method was to wash a portion of 2 ozs. (this quantity was most usual), and mix with it one-fifth of its weight of culm, or 8 dwts. This, placed in a black lead crucible, and submitted to a fierce heat in a furnace for about 25 minutes, would bring the black tin into metal, which must be freed from the slag or prellion by washing on a shovel, the process being called vanning. Arriving at the smelting-house, they commenced to weigh two sacks at a time, an allowance of 6 lbs. being fixed for the weight of the sacks. They then weighed their parcel, after which 3 lbs. for every hundredweight was deducted for waste or water weight. The weighing being over, the sample was next taken by cutting a hole down the heap, and taking from the sides such quantities as was thought proper, and again the 2 ozs. or an equivalent was taken by the smelteas' agent for the purpose of assaying and ascertaining its value. For argument sake, the produce was found to be 13¾; 1¼ was deducted from this for some extra waste said to exist, and the miner was then paid on a produce of 12½. In conclusion, Captain Teague read the following black tin return from the mines in Devon and Cornwall from 1865 up to the present date, which return showed that the quantity raised in the former year was fully 3000 tons more than was being produced now:—1865, 15,683 tons; 1866, 15,103; 1867, 13,649; 1868, 13,876; 1869, 14,719; 1870, 14,540; 1871, 14,460; 1872, 14,928; 1873, 14,884; 1874, 14,039. 1875, 12,611; 1876, 12,603; 1877, 12,600. This ought to encourage them to hope on, and he could not but think that better prices were in store for them.

Mr. JOHN HOCKING, in the course of a lengthy discussion, said he had the authority of the patentee of the Elephant Stamps to say that he was willing to lay down those stamps in any mine, and work them for three months continuously, the mine, of course, to defray the cost. If not then approved of he would take the machine back at his own expense. (Hear, hear.)

Capt. RICH created much laughter by expressing an opinion that the tin sometimes went down the Red River in sacks. Capt. Teague had created a wrong impression by stating that the cost of dressing tin was 9l. per ton. The cost entirely depended upon the work. The richer the stuff the less per ton would it cost them for dressing. One kind of tin might cost 12l. per ton, and another only 5l. per ton. He deprecated the present system of measuring ores, and suggested that there should be a uniform weight adopted. (Hear, hear.)

Capt. TEAGUE contended that the sum he had mentioned was the average cost of dressing. He was quite aware that a great deal depended upon the quality of the stuff, but he ventured to say that if they took the average of 20 mines in the county they would not find the amount he had mentioned far out of the way.

Capt. CHARLES THOMAS attributed the great waste of tin to the smallness of the slime pits, and the thickness of the slime.

Capt. ABRAHAM JAMES said he fully expected that Capt. Teague would have given them a detailed account of the cost of bringing the tin from the shaft's mouth to the smelting house. He referred more particularly to the cost of drawing, spalling, and carrying to the stamps, together with the cost of dressing, stamping, &c. He contended that as far as some mines were concerned Capt. Teague was wrong in stating that the cost of dressing was 9l. per ton. In his opinion they ought to sell at least one-tenth part more tin than they sampled. If they did they would not have so much stuff going into the Red River as they had at the present time.

Capt. TEAGUE said he would move that Capt. James be asked to read a paper on the whole subject. The information he was affording them was being entirely thrown away, and if given in a paper

it would be exceedingly valuable. (Hear, hear.) He (Capt. Teague) did not profess to deal with the cost of drawing, and perhaps Capt. James would include this subject in his paper.

Capt. JAMES rose to order, and objected to such a proposition as that made by Capt. Teague being put. He was his own free agent in the matter, and it was not for the meeting to say whether he should read a paper or not.

Capt. TEAGUE said that what he intended was that Capt. James should be requested to read a paper. Before sitting down he would ask Capt. Tregay to state his experience in reference to stone breaking, a subject which had been specially referred to in the present paper.

Capt. TREGAY spoke in favour of Blake's stone-breaker, and said that 30 per cent. had been saved at his mine by the use of this machine. When exceptionally hard stuff was met with a saving of quite 50 per cent. was effected.

Capt. TEAGUE, jun., pointed out, with regard to the desire for information expressed by Capt. James in reference to the cost of carriage, that what would apply to one mine would not apply to another. Supposing they took Tincroft and Carn Brea. Each had 240 heads of stamps, and let them imagine that the stuff was carried to Breage, because in many instances there were large quantities sold and carried to that district. Work would thus be provided for 480 horses daily, and allowing 5s. for each horse, the cost would be from 1200*l.* to 1800*l.* per month for each mine. Supposing they allowed each horse 12 ft., they would have about 1920 yards occupied altogether, and if they allowed a space of 12 ft. between the horses they would have two or three miles so covered, and he need not remind them of the great inconvenience this would be to the traffic. (Hear, hear.)

Mr. BOLDEN ridiculed the statement of Capt. Rich, that the ten streamers took tin from the mines in sacks, and remarked that they had taught the miners many useful lessons. It was not the man who tinned nearest the mine who met with the greatest success, but the most prosperous works were those which had got the latest improvements in machinery.

On the motion of Capt. JAMES, Capt. Teague was thanked for his paper, and the proceedings terminated.

— *Western Daily Mercury.*

UTILISATION OF MIXED ORES—No. I.

TREATING AND SEPARATING CERTAIN COMPLEX METALLIC COMPOUNDS.

That the market value of metals and minerals is at the present time unprecedentedly low is, unfortunately, but too well known to every reader of the *Mining Journal;* but it has more than once been remarked, by way of consolation, that the long period of depression through which we have passed has not been an unmixed evil, inasmuch as it has led to the introduction of more economic methods of working the mines, and of treating the minerals obtained from them, which will be of such enormous permanent advantage to mining industry as to far more than compensate for any suspension of profits which capitalists whose funds are invested in mines have just now to submit to. Whilst the managers and mine captains of Cornwall and other mining disricts have been diligent in their efforts to diminish the cost of sending the ore to grass, by endeavouring to adapt machine drilling to their several mines, by employing new and more powerful explosives, and by generally improving the system of underground operations, there has been equal activity on the dressing-floors, and many kinds of ore which only a few years since would have been thrown aside as worthless are now made to contribute largely to the returns; yet there is a considerable proportion of the ore raised which is, practically speaking, beyond the power of either the mine manager or the captain dresser, and it is to these that the chemical metallurgists are now turning their attention. Among the most promising processes coming within this class are those of Mr. F. MAXWELL-LYTE, some account of which it is now proposed to furnish.

The ores and metallic compounds to which Mr. Maxwell-Lyte exclusively devotes his attention are those which are at present either absolutely valueless or of merely nominal commercial value; and, as he has discovered means of separation by which he can at a comparatively small cost render each of the constitutents marketable, he has obviously opened a large field for enterprise. Among mixtures of most frequent occurrence may be cited galena (sulphide of lead) with blende (sulphide of zinc); either carbonate of lead or galena, with calamine (carbonate of zinc), or with the silicate of that metal; copper or iron pyrites with blende or galena, argentiferous galena with large proportions of antimony; all or any of these minerals constantly occur mixed with heavy spar (sulphate of baryta). The respective densities of the components of such mixtures are all so similar as to render their separation by dressing a most delicate, costly, and wasteful operation, and innumerable deposits of minerals occur in metalliferous districts, where the constituents are so intimately blended as to defy every attempt at mechanical separation. All the methods hitherto employed for dressing or concentrating the metalliferous portions of ores depend upon certain modes of mechanical treatment—such as pulverising, classifying the broken stuff into various sized grains by means of sieves, and then exposing each classified lot separately to the action of flowing water, whereby the lighter and less metalliferous portions are carried off, and the heavier more metallic parts remain. Variously modified methods are employed; but all are similiar in essential principles, depending entirely for their efficiency on the differential densities of the respective components of the ore and its gangue. The question, then, of ore dressing is merely one of specific gravities, and what is found to answer for the separation of metallic ores from the lighter gangue is obviously totally inapplicable to the separation of the metallised constituents of a mixed ore from among themselves. There are, likewise, deposits constantly occurring, in which the gangue itself, being composed of heavy spar (sulphate of barytes), cannot be separated from the metallic ore for similar reasons. Many Welsh and other lead mines afford large quantities of ores of this latter class, while in France and Spain they are particularly abundant.

For the commercial success of any process for the treatment of mixed ores it is essential that it should be cheap and simple, and, at the same time, capable of such modification in detail as will adapt it to the various kinds of ore which have to be dealt with; for it cannot be disputed that almost every parcel must, whatever system of chemico-metallurgical extraction be followed, receive a different treatment, the difference sometimes being very trifling, but at others demanding a considerable amount of skill and judgment. Whether profit or loss results depends entirely, therefore, upon the ability of the superintending chemical-metallurgist to devise modes of treatment, and of the technical foreman to see that the process is carefully carried out; but the fact must not be lost sight of that the margin for profit is so large that the payment of the most competent men can well be afforded, so that success may be pretty well assured. By way of example, it may be mentioned that flue-stuff from a leadworks, which would willingly be sold at less than 3*l.* 10s. per ton, can for an outlay of 4*l.* 10s. per ton (to provide for labour, materials, management, and general expenses, and interest and sinking fund on cost of works and stock in hand) be made to yield products in the shape of metallic lead, antimony, and oxide of zinc of the value of 13*l.* 5s. at the present depressed prices—so that, allowing 5 per cent. for commission and expenses of sale there would remain a profit in round numbers of 4*l.* 12s. per ton, which, assuming only 20 tons per day, to be treated, would give 27,500*l.* per annum profit, which upon the proposed capital of 24,000*l.* would certainly leave nothing to complain of.

That a process which designs to deal with the difficulties mentioned, and promises such excellent results, will receive attention cannot be doubted, and from the outline which will be given all interested will be readily able to judge of its practicability. Instances of large deposits of these mixed ores are to be found at Mona and Parys Mountain, in Anglesea; in many parts of the counties of Cork and Wicklow, in Ireland; at Great Laxey; in many of the mines of Wales, Cumberland, Derbyshire, Cornwall, and Devonshire, and in Scotland; at Lanzi, in Tuscany; and at Hultafall, in Sweden, where immense deposits occur; also at Laurium, Malfidano, Pierrefitte, and in the mines of the Valley of Arran; in the French Pyrenees, and in the Auvergne, and at other places too numerous to be cited, forming what may practically be regarded as inexhaustible quantities of material. These mixtures, although they cannot be separated or classified by mechanical means into their component metallic elements, for reasons already stated, are yet easily dressed apart from the gangue or country rock with which their ores are contaminated. The result of such dressing is, then, a composite metalliferous mixture, intrinsically most valuable, taking account of the respective values of its several competent metals, but practically worthless unless these metals can be separately obtained. Such mixtures, however, are unfortunately inseparable by any known process of smelting, and so have been for the most part thrown away into the waste heaps of the mines and rejected as useless. In order to afford some notion of the difficulties which occur in the treatment of such metallic mixtures by ordinary methods of fusion let us take, for example, the case of the Anglesea or Wicklow bluestone. This is a compound of argentiferous galena with blende, so finely mixed that the grains of each mineral are hardly, if at all, perceptible.

With regard to the extraction of the zinc it is well known that the metal is volatile, and is manufactured by distillation at high temperatures in earthern retorts, charged with a mixture of the ground calcined ore and pounded coal. The coal reduces the zinc to the metallic state, and this distils off, leaving behind it the gangue and the non-volatile metals with which the zinc was associated in the ore. In this operation, if lead be present, it remains in the retort, becoming more and more concentrated as the zinc volatilises. Now, lead at a high temperature attacks earthen vessels, and fuses them into a glass or slag, and thus the retorts are liable to become pierced, broken, and valueless. If, then, at each operation the retorts are thus liable to be lost, it becomes evident how the treatment for zinc of plumbiferous zinc ores is a practical impossibility. Thus, it follows that any zinc ore containing over 4 per cent. of lead is only with difficulty saleable, and where 8 per cent. is attained most manufacturers positively refuse to have anything to do with it. And, secondly, as to the lead, experience has shown that during the fusion of a lead ore containing much zinc the latter metal tends to form a very hard and infusible scoria, retaining throughout its mass much of the lead diffused in small globules; and moreover, this scoria seems to hold back much of the silver which would otherwise be taken up by the lead. Both lead and silver are likewise carried off in large quantities by volatilisation with part of the zinc. The consequence is a greatly diminished yield of lead, and even what is obtained is very deficient in silver.

THE SPONTANEOUS COMBUSTION OF COAL.

At the Manchester Geological Society meeting, on Tuesday, Mr. DICKINSON, H.M. Senior Inspector of Mines, occupying the chair, said that he wished to draw the attention of the members to a matter which had recently occupied public attention—the spontaneous combustion of coal—and he should desire to see some member of that Society give them a good paper on the subject generally. It was a question of great importance, and his attention had lately been specially called to the subject from the fact that he had been called as a witness in an enquiry at Liverpool with regard to the spontaneous combustion of coal when loaded on board vessels, and the loading of ships with coal. The subject closely affected Lancashire, because it had been said that Lancashire coal was specially liable to spontaneous combustion. He, however, pointed out that a great deal of the combustion of coal on board vessels arose from the careless loading more than from the nature of the coal. From what he had seen of the coal in Lancashire, he did not believe that there were whole seams which were affected in such a way as to cause them to be specially liable to spontaneous combustion. What was shown by the evidence was that some of the coal that had taken fire on board a vessel had been sent from the Lancashire district, but he had been able to show that so far as the above district generally was concerned there was a clean bill of health in this respect. The assistant-Inspector for West Lancashire had stated that two of the mines in that district were on fire which had been used considerably for export, but perhaps, if correctly reported, he went a little too far in saying that those seams were, consequently, not suitable for export. It was quite possible in a seam of coal that portions of it might be entirely free from liability to spontaneous combustion, but there might be bands of earthy matter separating the bands of coal which were liable to spontaneous combustion. It was his experience of the coal liable to spontaneous combustion that it was not so much the coal itself as the intervening bands, and it seemed a very serious matter to denounce one or two seams of coal simply because there might be intervening bands in them which were liable to spontaneous combustion. Whilst he was sitting at the examination he was much struck with the manner in which ships were loaded at Liverpool. It seemed that the men who had the charge of the loading of the vessels did not hold themselves responsible the moment after the cargo had been put on board. The stevedore stated that he had nothing to do with the loading of the the ship; he simply put the coal on board, and held the captain responsible to see that the vessel was correctly loaded. He (Mr. Dickinson) had pointed out that if people who were accustomed to stock coal in Lancashire were to stock it by dropping it from a great height, as was the case when it was thrown into the hold of a ship, they would not be surprised if spontaneous combustion took place. In loading ships he recommended that they should commence to build up from the bottom, or else place planks down into the hold. This was a matter which he should like to see gone into by the Society, and he thought there were members who would give them a paper upon it which would be very useful.

Mr. C. E. DE RANCE, F.G.S., said the impression produced by the report of the enquiry was that certain descriptions of Lancashire coal were specially liable to spontaneous combustion, and a sort of official negative would be of great value. There were people who had run away with the idea that the Lancashire main delf was so liable to spontaneous combustion, and gave out so great a qaantity of gas, that it was totally unfit for export; and there was a report that certain collieries had, in consequence, been discontinued, and 400 men thrown out of employment, but this he did not think was correct.

Mr. CHADWICK said he agreed with what the Chairman had observed with regard to the intervening bands between the coal. There was the Californian coal on the top of the Trencherbone, which was liable to spontaneous combustion, and it was not so much the Ravenhead delf as the coal on the top of it which was liable to combustion.

Prof. BOYD DAWKINS thought some importance with regard to this question might be attached to the presence of iron pyrites. Some years ago, when he was in Australia, he had occasion to see a very thin seam of coal. There was a 12½-ft. seam, then a layer of shale, and then another 12½-ft. seam, and one of the seams had been set on fire by the decomposition of iron pyrites which it contained. He did not know whether this might be the cause in some of the cases which had been referred to, but there was a great quantity of iron pyrites in some coal.

Mr. JOSEPH WILD observed that the Ravenhead coal contained a great deal of iron pyrites outside, on the top, and he had had to cut through coal which gave out a great deal of heat to prevent it taking fire, and some time after spontaneous combustion did take place, and the miners had not worked in it since. At the same colliery they had a very heavy rock of coal on fire, and there was no doubt it arose from the coal being tipped down from a great height, and the iron pyrites being mixed with it.

The CHAIRMAN observed that the stocking of coal was a thing which nearly all the careful colliery managers had avoided when they could not build up from the bottom, and he was very much surprised to find that in the loading of ships this consideration was received at the Liverpool enquiry as something new, but the succeeding witnesses endorsed what he said. Considering the manner in which the coal was dropped from a great height into the hold and then battened up he was surprised that there were not more cargoes set on fire. He again expressed a hope that one of the members would give them a paper. The subject had been under discussion in one of the mining societies of Great Britain, but he did not think the question had been half exhausted.

A discussion afterwards took place on a paper read at the previous meeting by Mr. Evans on "The Mines of the Parys Mountain, in Anglesey," but the opinion generally expressed was in opposition to the conclusion which Mr. Evans had set forth in his paper.

Mr. C. E. DE RANCE, F.G.S., H.M. Geological Survey, next read a paper on "The Secondary Formation of England as a Source of Water Supply for Towns," illustrating his remarks by a number of interesting diagrams. The discussion on this paper was adjourned, and the proceedings closed.

CHARGE AGAINST A MINES' MANAGER.

On Wednesday last at the Belper Petty Sessions, Derbyshire, before Mr. L. Mann, Mr. J. H. Woolley, and the Hon. F. Strutt, Mr. George Small was summoned at the instance of Mr. Thomas Evans, Her Majesty's Inspector of Mines, with being the manager of the Kilburne Colliery, and on Feb. 15 last did then and there neglect to observe the first general rule of the Mines Regulation Act, by neglecting to provide sufficient ventilation in the mine. Mr. S. Leech supported the summons, and Mr. Hextall appeared for Mr. Small.—Mr. Leech, in opening the case for the prosecution, stated that in consequence of an explosion of gas which took place on Feb. 15, burning one man, Mr. Stokes visited the mine on Feb. 25. He then found the general ventilation of the mine was inadequate, and that in one part of the mine there was only 400 cubic feet per minute, and at the place where the explosion occurred there was only 200 cubic feet per minute, which should have been nearly ten times as much. A previous explosion took place at this same colliery in May last, and Mr. Evans then pointed out to Mr. Small the inadequacy of the ventilation, and had now thought it his duty to institute these proceedings against Mr. Small.—Peter Johnson was then called, and said he worked in the Kilburne Colliery, and was burnt there on Feb. 15 by an explosion of gas. It was only a small quantity, and thought it came from a small hole in the roof, near the fault. Mr. A. H. Stokes said he was acting as assistant to Mr. Evans. He inspected the Kilburne Colliery in company with Mr. Small, the defendant, on Feb. 25. They first went to the south side of the workings; he there measured the air, and found only 400 cubic feet per minute in the return airway from the stalls. He also visited No. 19 stall. The place was damp. The men said they had complained to the deputy, but the underviewer had not been in their working place for more than three weeks. He then visited the heading where the explosion took place, but could not measure the air at the end of the brattice, the quantity was so small. He, however, obtained some brattice cloth, and contracted the opening until he could measure the quantity, and then found only 200 cubic feet per minute passing. This, in his opinion, was totally inadequate to ventilate the heading, which was driven 60 yards on brattice, and was passing through faulty ground. He should say there were required nearly ten times the quantity. The ventilation on the day of his inspection would be similar to what it was on the day of the explosion. The explosion could only occur through the inadequate amount of ventilation, and from no other cause.—Mr. Thomas Evans, Inspector of Mines, said that he did not consider 200 cubic feet of air sufficient to ventilate a heading similar to the one described by Mr. Stokes. There was no difficulty in properly and adequately ventilating the mine except the expense. There were required motive power and good airways, and then the colliery would be well ventilated. The explosion, in his opinion, was due to inadequate ventilation, and headings in a mine giving off fire-damp should not be driven such great distances on brattice.—Mr. Hextall, for the defence, urged that a small fall of bind had taken place just previous to the man going to work, and he putting his candle up to look in the hole fired the gas. He called Samuel Wheatley, the underviewer, who examined the place immediately after the explosion, and found a small quantity of bind fallen; he could not say how much, probably about 10 cwts. He had not been in the heading for a month previous to the explosion. He admitted that the explosion took place in consequence of the insufficient supply of air. The ventilation in this heading had passed through other works in the mine.—Another witness named Wheatley, the deputy, said he found about 2 cwts. of bind fallen from the roof after the explosion, and thought the small quantity of gas came from the hole near a fault they had just crossed. There had been 4 yards of brattice-cloth put up between the time of explosion and Mr. Stokes' inspection; this would carry the air nearer the face.—After a short consultation, the Bench informed the defendant that they considered the case proved, and imposed a fine of 10*l.* and costs.

THE KEARSLEY COLLIERY EXPLOSION.

The enquiry into the cause of death of the 43 victims by the recent colliery explosion at Kearsley was closed at Farnworth, on Monday, before Mr. J. B. Edge, district coroner.—Mr. Maule, Q.C., again represented the Home Office, and Mr. C. H. Holden, solicitor, appeared for the owners of the mine.

Mr. J. Dickinson, Her Majesty's Chief Inspector of Mines, said he inspected the mine on the day following the explosion, and he had no doubt whatever that the cause of the disaster was a fall of roof in the west workings, followed by an eruption of gas. At the time of his visit gas was coming off from the fall so strongly as to fill the cavity in the roof and to fire a lamp in Partington's place. A week after the explosion gas was still issuing from the crack in the roof. After the fall the men appeared to have retired into the levels, and possibly all these had put out their lights. He could not account for the explosion being so widespread. Had it not been so a considerable quantity of gas must have issued before it became ignited. The pressure of the blast had been so strong that that alone must have instantly killed the men. The flame had travelled all through the mine, and he believed, from the indications of burning that he saw, it had shot up the shaft for nearly 100 yards, or 30 yards above the Trencher-bone mouth. He did not think that atmospherical changes had anything to do with the explosion. From the Sunday to the Wednesday (the day after the explosion) he found that the barometer steadily rose. Changes in the barometer were often made an excuse for bad ventilation. He was down the pit 15 days before the explosion, when he found the ventilation ample. Under ordinary circumstances it would be quite safe to work the pit with naked lights, but youths of an older age were now sent down the mines, and they were not taught to guard against accidents in the same way as they used to be. He hoped, however, that education would eventually counteract this. Whenever there was a fall of roof all naked lights ought to be at once taken away, and had Holt, the underlooker, when he found that the roof was shifty, ordered the men out, the probability was that the jury would not now have been sitting. There were a great number of shots in the neighbourhood, and these might cause a fall at any time without previous warning. Had the men been provided with self-extinguishing lamps, such as Stephenson's or Mueseler's, the gas would probably have got away without causing an explosion, but he believed the explosion might have occurred even with the use of the Davy lamp, owing to the velocity of the gas and air. Three out of every four colliers would probably prefer candles to lamps, as they were better safeguards against the falls of coal.—Mr. J. S. Martin, Assistant Inspector of Mines, corroborated this evidence.

Mr. James Stott, one of the proprietors of the colliery, said the mine was as well ventilated as any in Lancashire. In his opinion Holt was perfectly justified in allowing the men to remain, even after the slipping of the roof had been heard. The firm would not continue the use of candles in the mine, though personally he considered that a good man with a candle was better than a bad man with a lamp. As a rule, greater precautions were used by men who worked with naked lights. Of course, he would not advocate the use of candles in fiery seams.

This concluded the evidence, and the jury, after about ten minutes consideration, returned a verdict of "Accidental death." They said they were thoroughly satisfied with the working of the pit, and did

not think that the underlooker or anyone else was to blame. They believed that everything had been done which could tend to the safety of the men.

ALLEGED IMPROPER WORKING OF A COLLIERY.

At Swadlincote Sessions, on Tuesday, Mr. C. R. Colvile and Earl Ferrers were engaged six hours hearing a charge against Mr. George Checkland, managing partner of the Donisthorpe Colliery. The charge was that he, on Jan. 15, failed to make secure the roof and sides of the travelling road and working places in his colliery. The charge was preferred by Mr. Stokes, assistant to Mr. Evans, Inspector of Mines for the district, and he was represented by Mr. Leech, of Derby. Mr. Sims Reeve defended—Mr. Leech said that Mr. Checkland was the managing partner, and his responsibility could not be disputed because he wrote to Mr. Stokes to that effect. A short time since the proprietors adopted a different system of getting coals to the one previously in operation for the purpose of clearing out all mineral from the pit, but a system attended with great attention and loss of life. They adopted a system of "packing"—they built up a pillar of stone "bind." They plied the "bind" piece by piece up to the roof, and so formed a substantial support, and if that support had been left alone there would have been little reason to complain; but it seemed that in order to get away the coal which was left when the "pack" was built, they had recently adopted a system of interfering with the "packs," and in a manner which had disturbed the roof and caused it to fall and kill two men within eight weeks. The first man was killed on Nov. 16, by a fall of the roof, caused, as the prosecution asserted, by interfering with the "packs." On Jan. 15 a second man, named Whetton, was killed in precisely the same manner, and those two deaths showed to his (Mr. Leech's) mind that the system of getting coal was unquestionably an improper one. Mr. Checkland had been advised by his engineer and manager that the present mode of working the pit was perfectly safe. Mr. Checkland said under the old plan half the coal had been left in the pit, and had been entirely lost, and great expense and trouble had also been caused by underground fires, the result of spontaneous combustion. The firm would have saved thousands of pounds if they had adopted the plan from the first, and he was astonished that Mr. Evans should have condemned the method without cause. The letters were of a most uncourteous character; he (Mr. Leech) thought they showed that the cause of adopting the new plan was simply to save the thousands of pounds.—John Williams, collier, Donisthorpe Colliery, deposed to the accident to Whetton.—Jesse Yardly, another miner, who was assisting Whetton in building the "pack" on Jan. 15, corroborated the evidence of the first witness, and added they could not procure the bind from anywhere except where the accident occurred.—John Kinson, a miner, who had left the Donisthorpe Colliery with other men because of the dangerous state of the mine, corroborated the previous witnesses.—Mr. Arthur Henry Stokes said the roof fell on in November and January in consequence of the want of proper supports. The object of working coal from the top of the "pack" was to get every bit out. In every pit in the district except the Donisthorpe the coal was left on the top of the "pack." It was the duty of Whetton to get the bind to build the "pack." Whetton when he was killed was carrying out the laws of the pit, and was doing his duty.

Mr. Thos. Wynne, Government Inspector of Mines for North Staffordshire, Cheshire, and Shropshire districts, said there was a great deal of "packing" done in his district, but he did not know a single case of the coal being taken off the "pack." Such a practice ought never to be allowed, because of its great danger.—Mr. Robert Howe, manager of the Netherseal Colliery, said they got coal there by means of "packs," but never removed the coal from the tops of the "packs." He had never heard of the plan of removing coal from the "pack" except at the Donisthorpe Colliery.—Mr. Thos. Evans, Government Inspector of Mines for the Midland district, said it was a most dangerous practice to remove the coal from the top of the "packs."—Cross-examined: Mr. Checkland had written several times stating that the plan he was following was the best, and he had been advised by his consulting engineer and manager to adopt it.

Mr. Reeve, on behalf of his client, said it was not a question of money so much as a question of principle which was involved in this case. The charge was that Mr. Checkland had allowed the roofs and sides of the travelling roads and working places to be insecure. Now, he should be able to show that Mr. Checkland for a considerable time had never been down the mine, and it was a serious thing to him that he should now be in the position he was. There could be no doubt that some animosity existed between the inspector and Mr. Checkland. If the inspector had only been striving to protect human life, he would not have adopted the course he had done, but would simply have summoned the manager, and then if the manager had been convicted Mr. Checkland would, of course, have paid the penalty, inasmuch as the new system had been worked under his approval. They were now dealing with a gentleman who had done everything which it was possible to do to protect the lives and limbs of his workmen. Dealing with the legal aspect, he contended that the 46th section of the Act provided that in cases where there was a dispute between an inspector and the proprietor of a mine respecting the method of working a mine, competent arbitrators should be called in.—Mr. Leech pointed out that this simply related to cases not provided for by the Act. To meet this case there was a provision.—Mr. Reeve, however, still contended that arbitration might have been resorted to, and added that the evidence he should call would prove that the man's death occurred through his own carelessness. Mr. Checkland believed that the plan introduced in his colliery was the best, the most economical, and the safest which could be adopted.

M. G. E. Checkland, the defendant, said Mr. Hardy, the certificated manager, had been approved by the Government Inspector. It was several years since witness was down the mine, and he knew little of its workings. It was the duty of the consulting engineer to visit the mine, and it was his duty to advise the manager to take every precaution to save life. An unhappy difference had existed between Mr. Evans and himself. He informed Mr. Evans that he considered his plan the best to adopt a month before the summons was taken out. Every man in the pit had a copy of the rules. He had never stinted his manager in the quantity of timber used as props. During the last few months his manager had adopted a new system of getting the coal. The plan was the only safe one to adopt. It would be madness to adopt any other. He had done everything in his power to keep the persons in his employ safe from accidents. By removing the coal there was less danger of combustion.—Cross-examined: He believed Mr. Hardy's plan to remove coal from the tops of the "packs" was a very good one. The coal was taken from the top of the "pack," partly because it would otherwise be wasted, and partly because it prevents spontaneous combustion.—Mr. T. Millership, consulting engineer for the Donisthorpe Colliery, said he had been at Donisthorpe since Jan. 1, and went down the mine once a week. If workmen adopted the 37th rule, in his judgment the way adopted at the colliery was a safe plan.—Mr. Godfrey Hardy, the certificated manager, said he introduced the plan objected to. It was the first place he tried it at, and he did not know any other place where it had been adopted. If Whetton had complied with the 37th rule the accident could not have occurred. If the rules were complied with he believed his plan was perfectly safe.—Mr. M. Mills, member of the firm of Coke and Mills, mining engineers, said the way for getting coal out of the colliery was a proper way; at least he could not say it was dangerous, but after hearing the opinion of gentlemen of such experience as those who had been called he gave his with reservation. Two of the workmen were also called to speak as to the safety of the pit, and one of them, who is now stallman in No. 14 stall, said he had never had any difficulty in getting the stone to build the "packs."

Mr. Colvile said there was no doubt Mr. Checkland was the responsible manager, and, therefore, liable where the law was broken. The Bench were of opinion that the defendant did not secure the roofs and sides of the travelling roads and working places, and must, therefore, convict him in a penalty of 1*l.* and costs. They had heard with great pain of the unpleasantness between the inspector and Mr. Checkland. With regard to the other charges, the Bench hoped they would be withdrawn.—Mr. Leech said he should not proceed with the similar cases against the engineer and manager, but felt it his duty to proceed against Mr. Checkland with regard to the neglect in filling up the plan of the pit, because Mr. Checkland had charged the inspector with telling an untruth. The plan was not filled up for 18 days after the proper time, and yet Mr. Checkland asserted that it was.—Mr. Checkland said he had ascertained that he had been labouring under a mistake.—The case excited great interest among the colliery proprietors of the district, many of whom were present throughout the hearing.

ROCK BLASTING.

The important changes which have resulted from the introduction of machine drilling add considerable interest to an historical account of the system of blasting rocks in general, and this history has been furnished in the handsome volume* just completed by Mr. André. He explains that the system which was suitable to the operations carried on by hand was inefficient under the requirements of machine labour, and the methods which had been adopted as the most appropriate in the former case were found to be more or less unsuitable in the latter. Machine boring, again, necessitated the use of stronger explosives, and more expeditious means of firing have likewise been introduced, so that Mr. André had a good field to work upon.

It is acknowledged that the form of tool used is of great importance, yet there is scarcely any matter upon which the opinions of practical men differ more widely. Mr. André's introductory chapter treats of the tools, machines, and other appliances used in rock blasting, commencing his remarks on boring tools with the old and time-honoured jumper, and finishing with a description of the advantages of the most approved form of z bit. Referring to the hand drill, he states that the edge of the drill may be straight or slightly curved. The straight edge cuts its way somewhat more freely than the curved, but it is weaker at the corners, and is thus less suitable for very hard rock. It is also slightly more difficult to forge. The making and re-sharpening of rock drills constitutes an important part of the labour of the mine smith. When the borer steel bars are supplied to the smith he cuts them up as required into the desired lengths. To form the bit the end of the bar is heated and flattened out by hammering to a width a little greater than the diameter of the hole to be bored. The cutting edge is then hammered up with a light hammer to the requisite angle, and the corners beaten in to give the exact diameter of the bore-hole intended. Hammers, sledges, and auxiliary tools are treated of with equal minuteness. With regard to machine drills, Mr. André remarks that it would indeed be difficult to over-estimate the magnitude of the advantage accruing from the increased rate of progress due to the substitution of machine power for hand labour, and in future we may expect to see its application greatly extended. He considers that the numerous varieties of percussive rock drills now in use differ from each other rather in the details of their construction than in the principles of their action. The Darlington drill is the only one described. As to supports, there are descriptions of the stretcher and the Dubois-François carriage. The appliances for firing blasting charges, the old-fashioned squib being first described, and then the well-known Bickford's patent safety fuse. Electric fuses and exploders are also referred to, the character and utility of detonators being fully explained.

The succeeding chapter is devoted to the consideration of the explosive agents used in rock blasting, the characters and properties of gunpowder, guncotton, dynamite, tonite, Schultze's powder, lithofracteur, and the modifications of them being carefully described. In explaining the principles of rock blasting Mr. André mentions that when the line of least resistance is known it remains to determine the quantity of the explosive compound required to overcome the resistance along that line. Of course it is not possible so to proportion a charge to the resistance that the rock shall be just lifted out and no more, because neither the force developed by the charge nor the value of the resistance can be known with precision; but a sufficient approximation may be easily arrived at to enable us to avoid a loud report, that is indicative of wasted force. In the chapter on the operations of rock blasting Mr. André explains that premature explosion with an electric fuse is impossible. The shots explode simultaneously, so that only one report is heard. But there is no danger to be feared from a misfire, since there can be no smouldering in an electric fuse. The face may, therefore, be approached immediately, so that no delay occurs, and there is no risk of accident. Mr. André states that in blasting under water with gunpowder only the best and strongest qualities of that compound should be used. The extra strong mining powder of Messrs. Curtis and Harvey, commercially known as the E.S.M. powder, is of all the most suitable. The shattering class of explosives are, he says, very suitable for subaqueous blasting. He prefers the Darlington drill for boring under water.

The volume is throughout thoughtfully written, and is admirably printed, whilst the large number of well-executed plates with which it is illustrated greatly enhance its value.

* "Rock Blasting: A Practical Treatise on the means employed in Blasting Rocks for Industrial Purposes." By GEO. G. ANDRÉ, F.G.S., A.I.C.E. London: E. and F. N. Spon, Charing Cross.

THE IRON AND STEEL INSTITUTE.

The annual general meeting of this Institute was, by permission of the President and Council of the Institution of Civil Engineers, held at the theatre of the latter society on Thursday,

Dr. C. W. SIEMENS in the chair.

The report of the Council congratulated the members on the continued prosperity of the Institute; the total number of members exceeds 900. There continues to be a steady accession of new members, contributed both by this and foreign countries, 47 being proposed for election at this meeting. The Council refer with much gratification to the increase of foreign members, showing as it does that the objects and proceedings of the Institute are fully appreciated by continental and American metallurgists. Following closely upon the death of the late foreign secretary, the Council in June last had to deplore the decease of Mr. John Jones, the general secretary of the Institute, and one of the most active of its original promoters. A committee was appointed to raise a fund in recognition of Mr. Jones' services, and to aid his widow and family. The handsome sum of 2318*l.* has been raised in response to the appeal, of which 2000*l.* will be invested in the names of Messrs. Bell, Dale, Whitwell, and Williams, as trustees, and the annual income will be paid to Mrs. Jones, whilst the balance will be kept free for the discharge of educational and other special claims. The success of the meeting held at Newcastle in September amply justified the selection of that place by the Council, whose best thanks are hereby conveyed to the local reception committee, to the local hon. secretaries, to the owners of the works in the locality, to the North-Eastern Railway Company, to the Cleveland ironmasters, and to all others who helped to make the occasion agreeable. The attendance of members at Newcastle was larger than at any previous meeting of the Institute, and the large number of visitors who sought admission proved the interest taken in the proceedings. The receipt of an invitation from M. Tresca, on behalf of the Société des Ingenieurs Civils, to visit Paris in the ensuing summer, and the concurrent holding of the International Exhibition in that city, have induced the Council to recommend that the next autumnal meeting should be held in Paris. The deaths of Mr. F. W. Kitson and Mr. John Jones, and the retirement of Mr. T. E. Horton, have caused vacancies in the Council, which have been filled up by the election of Mr. James Kitson, jun., of the Monkbridge Ironworks; Mr. W. Richardson, of Oldham; and Mr. Henry Robertson, M.P. The retiring vice-Presidents and members of Council are—Mr. R. Heath, M.P., Mr. B. Samuelson, M.P., Sir James Ramsden, Col. Roden, Mr. E. Fisher Smith, and Mr. W. Whitwell. No other members have been nominated for election to the Council. The Bessemer medal for 1878 has been awarded to Prof. P. Tunner, of Leoben, Austria, one of the honorary members of the Institute.

The CHAIRMAN moved the adoption of the report, and the TREASURER read his report, showing amongst other things that the cost of the foreign secretaryship had been 239*l.*, and that there was 552*l.* 1s. 5d. in the treasurer's hands, or 35*l.* more than at date of last account. A long list of members in arrear of subscriptions, including about 70 or 80 names, and showing an average indebtedness of about 4*l.* 4s. to 6*l.* 6s. per head, was posted outside the door of the theatre, with a view to shame the defaulters into payment, but by the end of the first day only five or six had had their names crossed out of the black list.

Mr. DEBY (the foreign secretary) read his report upon the foreign business of the Institution.

The CHAIRMAN said he held in his hand the foreign secretary's report, which was a voluminous one, and no doubt contained much valuable information, and he asked the members to thank those gentlemen who had aided their foreign secretary, and also Mr. Deby for the amount of labour he had bestowed upon it.

A letter from P. Ritter von Tunner was read, returning thanks for the award of the Bessemer medal.

The CHAIRMAN continued that, thanks to their past president—Mr. Bessemer—it was the pleasure of the President of the Institution each year to present the Bessemer medal to the most worthy in connection with their branch of industry. Mr. Tunner might be said to be the leading spirit of the Styrian iron industry, and he had for many years been active in calling into existence young metallurgists who had done good work in Austria, and the English were now receiving large supplies of ferro-manganese from Styria; he, therefore, felt assured that the members would appreciate the decision of the council in the award they had made.

Mr. I. Lowthian Bell accepted the medal on behalf of Prof. Tunner.

The CHAIRMAN said they would now come to the ordinary business, and ask for any remarks upon Dr. Percy's paper, read at the Newcastle meeting, on the protection from atmospheric action which is imparted to metals by a coating of certain of their own oxides.

Mr. BAKER, of Sheffield, explained that in Sheffield it was the common practice to wet the rolls and the sheet metal going through, and this gives them a coating similar to that produced by Barff's process, and the rolled sheet could be bent about in any direction without breaking the coating. He also referred to the protecting coating formed upon a gridiron and saucepan used and exposed to wet.

Mr. E. RILEY considered the illustration of a gridiron a bad one, and they well knew that a common way of protecting a piece of iron was to coat it with tallow and burn the tallow, which burned a coat of carbon on to it.

Mr. SNELUS enquired whether it would not be practical to get details of Barff's process, as Dr. Percy's paper had furnished no useful description of it?

Mr. P. F. NURSEY referred to a case in which pipes passed through a boiler furnace were coated with oxide, and thus thoroughly protected by the action of superheated steam. He thought it would be undesirable to introduce oxidised material into bridges, or for other structural requirements.

Mr. ISAAC LOWTHIAN BELL objected to the view that superheated steam would injure the iron. It was the usual method of treating the best boiler-plates. In Russia the oxidation, so much admired, was produced by burning green wood in the furnace, which might be considered equivalent to using steam, and they all knew that none preserved its brightness longer.

The CHAIRMAN enquired whether Mr. Bell had seen plates so preserved exposed to the action of sea water?——Mr. BELL said he had not.

The CHAIRMAN expressed the hope that Barff's experiments would be followed up, as there was no doubt great need of a preservative for iron and steel. He then called for the discussion of the second paper of Dr. Percy on the "Cause of Blisters on Blister Steel."

Mr. BAKER said that the reconversion mentioned in the paper was common in Sheffield, and he believed that if Dr. Percy had made more visits to Sheffield he would not have made many of the statements he had in the paper. No difficulty was experienced at Sheffield in producing the results desired without adopting Dr. Percy's suggestions.

The CHAIRMAN said that the substance of Dr. Percy's paper was that where no oxide was enclosed in the metal no oxide was formed. He concluded by moving a vote of thanks to Dr. Percy for his papers, and it was unanimously carried.

ON THE SEPARATION OF PHOSPHORUS FROM PIG-IRON.

BY I. LOWTHIAN BELL.

The weakening effect of phosphorus on the quality of iron or steel containing this substance has been acknowledged for many years. In examining the conditions which favour or retard the separation of so unwelcome an ingredient from pig-iron during its conversion into wrought-iron or steel, I was led to include in my investigations the behaviour of other elements usually associated with the metal as it runs from the blast-furnace. The opinions arrived at upon this more general question have been communicated to the Institute in two papers, under the title of "The Separation of Carbon, Silicon, Sulphur, and Phosphorus in the Refining—the Puddling Furnace and the Bessemer Converter." The elimination of phosphorus from pig-iron is, doubtless, a subject of great interest and importance to British smelters, having regard to the fact that nearly five-sixths of the metal obtained from their native ores contains so much of this impurity as to unfit it for the manufacture of steel, that form of iron which bids fair to supersede the product of the puddling-furnace. There is no doubt that the mere fusion of cast metal with oxide of iron produces a marked change in the composition of the latter. About 30 per cent. of the carbon and 60 per cent. or thereabouts of the silicon are removed, but the phosphorus is only slightly affected by the treatment, while the iron, in some cases at all events, seems to absorb sulphur from the coke employed in the operation. It need scarcely be mentioned that the character of the change in the quantities of carbon and phosphorus which is effected in the puddling-furnace has been well known for many years. If, therefore, a substance which may be regarded as partially puddled iron could be beneficially employed in the manufacture of steel, we have had such a material at our command long before this last-mentioned form of the metal occupied its present prominent position.

The chief object of recent attempts to separate phosphorus from pig-iron containing it has been to fit the metal for steel-making. So long as the Bessemer process was the only one in use, and Spiegel iron, containing only 10 to 12 per cent. of manganese, was employed, and so long as it was deemed essential that a rail, to ensure durability, should have about ·4 per cent of carbon, any phosphorus exceeding ·1 per cent. was regarded as dangerous, and, therefore, inadmissible. The substitution, however, of the Bessemer converter by the Siemens-Martin, or open-hearth furnace, and, perhaps, with the use of ferro-manganese, containing five times as much manganese as that generally found in Spiegel iron, have permitted the presence in steel of a larger percentage of phosphorus than was formerly believed consistent with safety. In such cases, however, it is regarded as indispensable that the carbon must be reduced in amount as compared with those where the phosphorus does not exist beyond ·1 per cent. As an example of such steel, Mr. Howson recently showed me specimens made from a mixture of hematite pig and Cleveland wrought-iron, puddled in his own furnace, in which the phosphorus was above ·3 and ·4 per cent. They did not appear to want in strength or ductility, but I have not heard that any quantity of such a material has been applied to actual use. Notwithstanding this change of opinion in respect to what may be regarded as a partial replacement of carbon by phosphorus, it is, in my judgment, still open to doubt whether rails containing an excess of this substance do not involve an element of danger. As is well known in those where the phosphorus does not exceed what may be regarded as the point of safety, occasional rails gave way without there being any apparent cause, chemically speaking, for the change. This defect may be due to molecular change, dependent upon circumstances connected with heating the ingots for the mill, or on phenomena attending the rate of cooling. It is, therefore, quite intelligible that rails containing what may be regarded as an excess of phosphorus may be more liable to be affected in the way supposed as the possible cause of the difference in quality than those in which the phosphorus exists in more moderate quantities.

When dealing upon former occasions with the separation of phosphorus, I pointed out that in the processes of puddling, refining, and in the Bessemer converter, the oxidation and removal of this metalloid appeared to be in the inverse ratio of intensity of temperature. In the first-mentioned operation a very large quantity thus leaves the metal and is taken up by the slag, while in the last-mentioned all the phosphorus remains in the steel. It happens, also, that the quantity of silica in the slag is least where the removal of phosphorus is most complete, and largest where the quantity of this element remains unaffected. Even in the example I instanced, in which 25 per cent. of the pig-iron was oxidised, the accompanying cinder contained 45 per cent. of silica. Under such circumstances, therefore, it is undoubtedly open to question whether the separation of the phosphorus was favoured by moderating the heat or impeded by the presence of silica.

I have endeavoured since then to make these alternatives the subject of direct experiment, and although it would be imprudent to speak very confidently in the present state of my information, I am inclined to the belief that intensity of temperature alone does materially modify the conduct of the phosphorus, but the experiments must be allowed to answer for themselves. The specimen of pig-iron operated upon contained 1·710 per cent. of phosphorus, and 1500 grains of it was maintained in a state of fusion for 20 minutes, with a similar weight of oxide of iron containing 16·49 per cent. of silica. In two trials, where the temperature was just sufficient to keep the contents of the crucible liquid, the prosphorus was reduced to 1·446 and 1·248 per cent. respectively. In the third experiment the heat applied was as intense as could be obtained in a powerful gas furnace urged by blast, and here phosphorus was found to the extent of 1·739 per cent., indicating therefore no diminution of quantity in this substance.

Two experiments were then tried with a ton of iron, where the silicon in neither case exceeded ·4 per cent. In the first the cinder employed contained 17·120 per cent. of silica, and in the second 16·490 per cent. The former was moderately heated, and to the latter as intense a temperature was applied as could be obtained in the Godfrey and Howson's furnace. The result showed a loss of 70 per cent. of phosphorus in the first, and only 12 per cent. in the second trial. My researches have not been pursued to such an extent as to enable me to say what the point is where the presence of silica on the fused oxides or cinder materially weakens the power of the latter to absorb the phosphorus from the pig-iron.

I do not know whether I can better illustrate this than by describing the circumstances attending one of the many experiments which have been tried. A quantity of the white and crystalline purified iron, containing 3.469 per cent. of carbon, and which had been imperfectly freed from its phosphorus, was melted with coke in a foundry cupola. On being tapped it flowed like as much pig iron, and after 19 minutes' exposure in the purifier still held 3·343 per cent. of carbon, retaining its fluidity after this lapse of time. In the product only 6 per cent. of the original phosphorus was found. A few words now as regards the adaptability of the purified iron for steel, and here, doubtless, I am bound to admit that, if ·1 per cent, has to be considered as the limit to which phosphorus can be tolerated in steel, I have still to look to the future for the realisation of my hopes. My own experience, however, has demonstrated that in more moderate quantities than those recently operated on the phosphorus has been reduced upon three occasions to ·089, ·099, and ·085 respectively, the carbon remaining at 3·251, 3·265, and 3·209 respectively. Under such circumstances we are, it may be assumed, justified in asserting that oxide of iron, when applied in the manner explained, does actually possess the faculty of almost entirely ridding our iron of an element which often unfits and always impairs its suitability for purposes in which strength and tenacity are required. If, therefore, on some occasions the reduction in the quantity of phosphorus has fallen short of that which I calculate on effecting with regularity, it ought, in my opinion, to be attributed to a departure from those conditions which are essential for success. This deviation from the rule laid down was unintentional, no doubt, but it did not exceed that which probably may be looked for upon similar occasions. So far as I am able to judge uniformity of results is a question of mechanical arrangement rather than one of chemical difficulty.

(*To be continued in next week's Journal.*)

THE TRIPLEXICON.—At the ordinary meeting of the Inventors' Institute, on Thursday evening (Sir Antonio Brady, J.P., in the chair), an interesting paper, accompanied by a long series of comparative photometrical experiments, was read by Mr. Hughes, of Hoxton-street. The author explained that the chief object of the paper was to describe some improvement in lamps which he had recently patented (through the Inventors' Patentright Association) with a view to secure increased brilliancy and intensity of light in lamps, of convenient use where the lime-light or the more powerful arrangements for using gas cannot be adopted. Mr. Hughes' arrangement consists of three flat wicks (which he can make from ½ in. to 4 in. wide) placed side by side, and burning the ordinary crystal oil now so generally employed. One form would apparently be capable, with very little modification in the placing of the oil-chamber and reflector, of application in ball-rooms or dining-rooms of country mansions, as a couple of them placed near the ceiling would produce in a large room almost as good an effect as a pair of gas sunlights, now so much admired. The triplexicon light is pure white, of enormous power for an oil-lamp. It is stated that the consumption of oil is comparatively small, so that it has much to recommend it. On Thursday evening its power was effectively shown in its application to magic lantern purposes, its brilliancy, as compared with the ordinary lantern employing the fountain argand, and with the sciopticon burning a two-wick lamp, being very marked. The same photograph thrown upon the screen by the three lanterns, the disc being made of equal size in each case, leaving no doubt as to the superiority of the new arrangement. In the discussion upon the paper Sir Antonio Brady, Dr. Croft, Mr. F. W. Campin, and several members of the Inventors' Institute accustomed to the use of lanterns, expressed their high approval of the results which Mr. Hughes had achieved.

HOLLOWAY'S OINTMENT AND PILLS.—In all sores, wounds, bad legs, and sprains of any kind this ointment is the most efficient application. It at once gives ease by allaying inflammation and moderating the flow of blood to the part. Whenever the malady has been of long standing the ointment should be assisted by Holloway's purifying pills, which act upon the stomach and liver, guarding digestion from falling into that disordered state which the pain, restlessness, and fever attending these ailments is apt to produce, and which much retards recovery; and sometimes even makes serious the slightest case. No mother or nurse should be without these noble remedies; they are equally applicable to all ages and constitutions. They purify the blood, regulate its circulation, renew diseased structures, and invigorate the system.

THE

Lossiemouth Lead Mining Company

(LIMITED).

INCORPORATED UNDER THE COMPANIES ACTS, 1862 AND 1867.

CAPITAL £30,000, IN 6000 SHARES OF £5 EACH,

Of which 5000 are Ordinary, and 1000 B or Deferred Shares, subject to the conditions hereinafter mentioned.

£1 payable on application, £1 on allotment, and £3 in instalments of £1 each, at intervals of not less than three months. Interest at the rate of 5 per cent. per annum allowed on all sums prepaid.

In the event of no allotment being made the deposits will be returned without deduction.

DIRECTORS.

HENRY P. HARRIS, Esq., 56, Mansell-street, E.C., and Chase House, Hadley.
JAMES HENDREY, Esq., Whitehall Club, Westminster, and The Hollies, Crystal Palace Park, Sydendam.
JAMES L. SHUTER, Esq., Chamberlain's Wharf, Tooley-street, E.C., and Lawn House, Holloway
GEORGE TAMPLIN, Esq., 159, Fenchurch-street, E.C., and 12, Manchester-square, W.
JULIAN H. TOLME, Esq., 1, Victoria-street, Westminster, and 17, Dawson-place, Bayswater, W.

GENERAL MANAGER—LESLIE C. HILL, A.Inst.C.E., F.C.S., Civil and Mining Engineer.

BROKERS—JOHN HILL AND SONS, Bartholomew House, Bartholomew-lane, London, E.C.

BANKERS—IMPERIAL BANK, Lothbury, E.C.

SOLICITORS—JAMES BREND BATTEN, 32, Great George-street, Westminster.
FORSYTH AND STEWART, Royal Bank Buildings, Elgin, N.B.

SECRETARY—CHARLES CHAMBERS.

OFFICES,—66, CLEMENT'S HOUSE, CLEMENT'S LANE, LONDON, E.C.

PROSPECTUS.

This company is formed to purchase from Mr. L. C. Hill the lease of the Stotfield Lead Mining Property, situated near Lossiemouth, in the county of Elgin, N.B., together with all interest in the shaft and other workings, lead ore, plant, &c., now on the property, and to continue to develope and work the lead mines and lodes thereon.

The property is now held on a lease for a period of 19 years from the 14th November, 1875, which lease is to be surrendered, and the proprietor has agreed to grant a new lease to the vendor and others for a term of 21 years from the 14th day of November, 1877, according to the terms of a draft which has been agreed upon.

A copy of this draft lease may be inspected as below, in which it will be seen that full power is granted to work all minerals, and to use the surface for all legitimate mining purposes, subject to the usual conditions, on payment of a royalty of one-sixteenth of all minerals raised and sold, together with a dead rent of £1 per annum. Also that this lease includes the proprietor's rights to all minerals under the Moray Firth below high water mark adjacent to the other minerals.

The lodes run through waste uncultivated lands near the sea shore which are of little value, so that the surface damage will be very small.

Reports have been made on this property by competent mining engineers, from which it will be seen that—

The property is crossed by two powerful, almost vertical lodes, one running north east and south-west, and the other east and west, which intersect each other near the shaft (see plan); the former has been traced ore bearing for a distance of 77 fms. east and 230 fms. west of the shaft.

There is a regular course of ore running along the south wall, which is estimated to be worth 2 to 3 tons of lead per fathom, and also an immense deposit is found, probably caused by the junction of the two lodes; the outcrop of this is exposed at low water, and is seen 100 ft. long and 27 ft. wide, containing good ore throughout, but is stated to be much larger.

Several thousand tons of dressed ore, worth £13 per ton, can be delivered f.o.b. at a cost not exceeding £6 per ton. Also that large returns can be made in six months, and that the mine is capable, when developed, of producing 200 to 300 tons of dressed ore per month, and even more.

Copies of these reports accompany this prospectus, and may also be seen, together with samples of the ore, at the company's offices.

It is confidently expected that, independent of the deposit at the junction, the ground to the south of and above high-water mark will yield 150 tons of ore per month; and should this deposit improve and consolidate in depth, as there is every reason to expect will be the case, immense quantities can be raised.

From reasons stated in the reports no difficulty is anticipated from water percolating into the workings, but should this happen the small bay which is crossed by the lodes can be entirely cut off from the sea at a small expense. The shore is constantly forming, and has extended considerably during the last 18 months, so that by building groins and tipping the waste rock into the sea the beach would soon form across the bay.

The proximity of the harbour and railway station affords unusual facilities for transport, and low freights may be obtained to Newcastle-on-Tyne, where the ore can be sold for smelting, as vessels bringing coals from that port return at present in ballast.

Making full allowance for all expenses, including royalty, it is estimated that in permanent working the dressed ore can be delivered f.o.b. at cost not exceeding £7 per ton, and that this will be worth at the present low price (say) £11 per ton.

Even taking the low estimate of 150 tons per month, this will give a profit of £7200 per annum, which would allow of a dividend of at least 20 per cent. on the total capital.

But as the richest deposits are always found at the junction of two lodes it is expected that when the main deposit is reached this output will be doubled.

Lead mining is well known to be the safest of all metal mining, and as it is considered certain that such powerful lodes as those found on this property will continue to a great depth, this undertaking is believed to bear as little risk as is possible in a mining enterprise, nevertheless it is intended to proceed with the utmost caution, and to sanction expenditure only for the development of the mine until further outlay is absolutely warranted by ore raised or in sight.

It is estimated that the sum of £3 per share will be sufficient to develope the mines and erect dressing floors, and it is not intended to make any further call until the mine has been proved, and then only in the event of further capital being required to provide pumping and hoisting machinery, tramways, &c., and to enlarge the dressing-floors when the main deposit of ore has been reached.

The purchase price of the property is £6000 in cash, 1000 fully paid-up ordinary shares, and 1000 B or deferred shares, which bear no interest unless the net profits amount to £5000 per annum.

The only contracts entered into are—

1st.—That between Leslie Crassweller Hill, of the one part, and James Brend Batten, on behalf of the Lossiemouth Lead Mining Company (Limited), of the other part, and dated 15th of March, 1878.

2nd.—That between Henry Lobb, of the one part, and Leslie Crassweller Hill, of the other part, and dated the 23rd day of January, 1878.

A copy of the proposed lease, and of the contracts and reports, may be inspected at the offices of the solicitors to the company.

The Yniscedwyn Company, Limited.

REGISTERED UNDER THE COMPANIES ACTS, 1862 AND 1867.

CAPITAL £60,000, IN 6000 SHARES OF £10 EACH.

£2 per share payable on application; £3 per share on allotment, and the remaining £5 per share in two instalments of £2 10s. each, at three and six months from allotment, when all liabilities will cease.

DIRECTORS.

GEORGE GOWLAND. Esq. | JOHN ROMANES, Esq.
W. H. LETHBRIDGE, Esq. | P. W. SYDENHAM ROSS, Esq.
NICHOLAS SADLER, Esq.
(With power to add to their number).

BANKERS—THE IMPERIAL BANK (Limited), Lothbury, London, E.C.

SOLICITOR—ALEX. KERLY, Esq., Great Winchester-street, London, E.C.

AGENT—Messrs. LIVINGSTON, RICHARDS, AND BEAUMONT, Swansea.

SECRETARY AND OFFICES.

W. H. HARRISON, Esq., 1, PALMERSTON BUILDINGS, LONDON, E.C.

This company is formed for the purpose of purchasing and working the well-known Yniscedwyn and Abercrave Collieries, as well as the Yniscedwyn Steel and Iron Works, situate at Yniscedwyn, about 13 miles from the port of Swansea. The works are connected with the Midland, the Great Western, and London and North-Western Railway (having their own branch railways and sidings, all of the standard guage, capable of accommodating at least 1000 railway trucks at one time), and are thus in direct communication with all parts of the kingdom.

This extensive property (over 3500 acres of minerals, about 400 acres of surface, including several farms, a number of cottages, a mansion and agents' houses) is held upon exceptionally favourable terms, under various leases, particulars of which may be seen at the offices of the solicitor.

There are four large collieries, fine iron and steel works, together with a good-sized foundry, and altogether a most efficient plant.

The Four Collieries are all extensive, and contain six seams of the purest anthracite coal, with an aggregate thickness of about 28 ft., and are estimated to contain 37,000,000 tons of workable coal. One of the seams (the celebrated Big Vein) is over 9 ft. thick. There are also veins of ironstone and fire-clay, limestone, &c., all of which are elements of considerable value. The collieries are complete with the most costly plant, engines, boiler power—in fact, no outlay has been spared to bring the whole into the highest degree of perfection. From the pits an aggregate of at least 2000 tons of coal may be produced daily.

The Iron Works are among the oldest, if not actually the oldest established in the kingdom, and everywhere well known as the Yniscedwyn Anthracite Iron Works. They consist of two blast furnaces, hot blast stoves, and complete plant. The furnaces which were recently fitted and remodelled on the most approved principles, have been worked most successfully, producing a larger annual yield of iron per furnace than has been obtained by any other furnaces in this country using anthracite coal.

The two blast furnaces have not only produced pig-iron of the highest quality suitable for steel making purposes, but also spiegeleisen up to 17 per cent. metallic manganese, thereby far outstripping any of the German or other foreign manufactures, and commanding the highest prices in the market. This, of course, is the best test of any, and it is, therefore, scarcely necessary to refer to any other, but it may be worth while to mention that the trials of this iron under Mr. Kirkaldy's great breaking machine, at Southwark, gave some of the best results ever yet afforded with pig iron.

Yniscedwyn iron is in great demand for tin plate works, and, South Wales being the chief seat of the tin plate manufacture, the works are much more favourably situate for supplyidg the pig iron required than the hematite furnaces of Barrow and elsewhere.

The Steel Works have been built under most elaborate designs, and in a most costly manner, but are not yet quite completed. They will require an outlay of between two and three thousand pounds to get into operation. It should be understood that the steel made is not the common steel of the Bessemer or Siemens' process, worth from £7 to £10 per ton, but Sheffield tool or cutting steel, worth £60 per ton, or even more, in samples of exceptional excellence. The trial samples of this steel, submitted to Messrs. Robt. Hadfield and Co., the large steel casting company in Sheffield, realised results never yet obtained by either Swedish or Russian steel and in their printed report it is stated that if only equal quality could be maintained, a full market and high prices were secure. As this steel process is founded on purely practical, though at the same time scientific principles, there should be no difficulty in ensuring the like results from using the like materials the great point being the purity of the fuel, as it is not difficult to purchase fairly good iron ores. Pure fuel, however, is of a most exceptional occurrence, and now that steel is pretty sure to supersede iron for many purposes, it is likely more than ever to command a high price.

Apart from the profit likely to be derived from the development of the steel manufacture, and reckoning only upon a restricted output of coal and a moderate make of iron, the profit may be fairly estimated as follows:—

150,000 tons of coal, at 1s. per ton ...	... £ 7,500	0 0
15,000 tons of iron, at 6s. 2d. per con ...	4,131	17 0
Equal to	£11,631	17 0 per annum.

This amount of profit would after payment of charges of all descriptions, admit of dividends at the rate of about 14 per cent. on the capital of the company.

That profits to the amount named are the least which may be calculated upon is clearly indicated by careful reports, based upon *data* afforded by the raisings of coal at these collieries fer some years, according to which the cost of working a fair quantity of coal would be from 4s. to 4s. 5d. per ton. The numerous orders now in the hands of Messrs. Livingstone and Co. may be taken as a proof that 5s. 6d. to 6s. 6d. per ton may be realised. At the Iron Works an average of over 12,000 tons per annum was produced at a profit of about 9s. 2d. per ton, and during September, 1876, the average cost of making 1153 tons of pig iron was 63s. 9d. per ton. It is calculated that iron can now be made at Yniscedwyn for under 61s. per ton, and as the cost of labour and material is considerably lower than in September, 1876, when iron was made for 63s. 9d., it will be seen that this estimate of cost is not only well founded, but may be said to be an outside one.

From enquiries made at the offices of some of the best firms in South Wales, it has been ascertained that there would be no difficulty in obtaining a ready sale for all the iron which can be turned out at from 71s. to 73s. per ton.

An estimate of the value of the property may to a certain extent be formed from an extract from the balance-sheet of the last owners (which will be found with the prospectus), showing the outlay made upon the plant and from the valuations of Messrs. Daniel, who deservedly occupy a very high position as engineers in South Wales. These afford sufficient evidence of the great worth of the property and the very reasonable terms upon which it has been acquired. The valuation of Messrs. Daniel was (as a reference to their reports will show) £137,472.

The plant and machinery are so extensive, and in such perfect working order, that little, if any, expenditure will be required upon them; and, as payment for coal sold will be immediately forthcoming, only a small working capital will be found necessary. To provide against contingencies it has, however, been deemed prudent to reserve a sum of 10,000*l.*, which will allow of a sufficient working capital for all purposes.

These properties possess exceptional advantages, which will enable profits to be realised in bad times, when others not so well circumstanced can only be worked at a loss.

Prospectuses may be obtained on application at the offices of the company, and at the solicitors, where copies of the contracts for the purchase may also be seen.

PRODUCTION OF SULPHURIC ACID.—The invention of Mr. JAMES MASON, of Eynsham Hall, near Witney, relates to the employment for the production of sulphuric acid of iron pyrites containing copper, such, for example, as what are known as cupreous pyrites, or as iron pyrites, containing a small quantity of intimately mixed copper sulphide, or of copper compound or compounds, such or similar to those which occur in the Rio Tinto, Tharsis, and the San Domingo's mines and districts, from which the larger proportion of copper originally contained therein has been separated by another process which he has invented; such or similar pyrites, originally containing copper after they have undergone the treatment before referred to, will be found to be in a porous condition, and in such a condition as to be well adapted for the burning process effected either in kilns or otherwise, so as to produce sulphurous acid, to be employed in the production of sulphuric acid, as is well understood.

WATSON BROTHERS' MINING CIRCULAR.

Ten years ago the weekly information which had previously been published for a great number of years in WATSON BROTHERS' Mining Circular was transferred to the columns of the *Mining Journal*, with the following announcement; which is now reproduced in consequence of the numerous letters and enquiries handed to them of late in reply to one which appeared in the Journal on the Clementina Mine.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make their Circular now published in the *Mining Journal* more extensively known, and to state—

That they issue daily to clients and others who apply for it a Price List (as supplied to most of the London and country papers), giving the closing prices of Mining Shares up to Four o'clock.

They also buy and sell shares for immediate cash or for the usual fornightly settlement in all Mines dealt in on the Mining and Stock Exchanges, at the close market prices of the day, free of all charges for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other Securities dealt in upon the Stock Exchange.

Having agents in all the mining districts, they are constantly getting mines inspected for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of £2 2s.

In the year 1843, when mining was almost unknown to the general public attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with Statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and sharedealing than there is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to *recommend* mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

WATSON BROTHERS,
MINEOWNERS, STOCK AND SHARE DEALERS, &c.,
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

D'ERESBY MOUNTAIN AND VAN.—Soon after the Van Mine was purchased by a London company for 45,000*l.*, the writer spent several hours underground with Mr. Jehu Hitchins, and even in that gentleman's experience of 60 years in every part of the world he had seen nothing like it, and the market value soon afterwards rose to about 1,000,000*l.* sterling. For some time past Mr. Hitchins has been in America, and on his return we requested him to go into Wales and give us his opinion of the Gorse lode in D'Eresby Mountain. He has been there this week, and he writes, "I have not seen such a deposit of lead and blende ores presenting such promise of a splendid future as is here presented anywhere except in the Van." This is very satisfactory to us, as it will be, we have no doubt, to all the shareholders. He estimates that as soon as the dressing-floors and machinery are complete we can commence making large returns, half of which would be profit. It will be seen that the shares are to be kept in 512ths, the general feeling being that they will soon reach double the present price, from the merits of the mine alone.

D'ERESBY CONSOLS.—Mr. Hitchins expresses a high opinion of this property. The shares have all been taken up, and will doubtless rise with the "Mountain."

CLEMENTINA.—The agents here are sanguine as ever, and Mr. Hitchins considers the mine has great prospects.

SATURDAY, MARCH 23.—Market very quiet, and prices nominal. D'Eresby Mountain, 55 to 65; Great Laxey, 19½ to 20½; Roman Gravels, 8 to 8¼; Van, 24 to 26; East Van, 5½ to 6; West Chiverton, 11½ to 12⅝; Grogwinion, 3⅝ to 3¾; Leadhills, 3⅝ to 3⅞; Tankerville, 3¼ to 3⅜; Carn Brea, 42½ to 45; Dolcoath, 31 to 33; South Condurrow, 11 to 11⅛; Tincroft, 10 to 11; Grenville, 3 to 3¼; West Tolgus, 71 to 73.

MONDAY, MARCH 25.—Market for tin shares continues inactive. D'Eresby Mountain, Tankerville, and West Chiverton in demand. East Van weak at 5¼, sellers. Carn Brea, 42½ to 45; Dolcoath, 31 to 33; South Condurrow, 11 to 11⅛; Tincroft, 10 to 12; Agar, 4 to 4¼; Grenville, 3 to 3¼; Peevor, 6 to 6⅛; D'Eresby Mountain, 55 to 65; East Van, 4¾ to 5¼; Grogwinion, 3¼ to 3¾; Great Laxey, 19½ to 20½; Leadhills, 3⅝ to 3⅞; Roman Gravels, 8 to 8⅛; Rookhope Lead, 17s. to 19s.; Tankerville, 3⅛ to 3⅝; Van, 24 to 26; West Chiverton, 12 to 13; West PateleyBridge, 1¾ to 2¼; Wye Valley, 1¾ to 2¼; West Wye Valley, 3¼ to 3¾; West Tolgus, 71 to 73; Devon Great Consols, 2¾ to 3¼; Parys Mountain, 8s. to 10s.; Richmond, 9½ to 10; Eberhardt, 6 to 6½; Chontales, 11s. to 13s.

TUESDAY, MARCH 26.—There has been no material change in prices to-day. Lead shares steady. Tin stocks inactive.

WEDNESDAY, MARCH 27.—The chief demand to-day has been for West Chiverton, D'Eresby Mountain, Tankerville, and South Condurrow shares. Carn Brea, 42½ to 45; Devon Great Consols, 2¾ to 3¼; Dolcoath, 31 to 33; D'Eresby Mountain, 60 to 70; East Van, 4¾ to 5¼; Grogwinion, 3½ to 4; Great Laxey, 19½ to 20½; Leadhills, 3⅝ to 3⅞; Parys Mountain, 8s. to 10s.; South Condurrow, 11 to 11⅛; Tankerville, 3⅛ to 4; Tincroft, 11½ to 12⅛; Van, 24 to 26; West Chiverton, 13 to 14; West Pateley Bridge, 1¾ to 2¼; West Tolgus, 71 to 73; Wheal Agar, 4 to 4½; Grenville, 3 to 3⅛; Peevor, 6 to 6½; Wye Valley, 1¾ to 2¼; West Wye Valley, 3¼ to 3¾; Richmond, 9¾ to 10¼; Eberhardt, 5¾ to 6¼; Chontales, 11s. to 13s.; Flagstaff, 12s. 6d. to 15s.; New Quebrada, 1¾ to 2; Pestarena, 5s. to 7s.

THURSDAY, MARCH 28.—Market active for West Chiverton, D'Eresby Mountain, Roman Gravels, and South Condurrow. West Chiverton, 13 to 14; D'Eresby Mountain, 60 to 70; Roman Gravels, 8¼ to 8¾; South Condurrow, 11 to 11⅛; Van, 24 to 26; Great Laxey, 19½ to 20¼; Tankerville, 3½ to 4; Leadhills, 3⅝ to 3⅞; Grogwinion, 3½ to 4; Tincroft, 11½ to 12⅛; East Van, 4¾ to 5¼; Rookhope, 17s. to 19s.; Carn Brea, 42½ to 45; Dolcoath, 31 to 33; West Tolgus, 71 to 73; Grenville, 3 to 3⅛; Richmond, 9¾ to 10¼; Eberhardt, 6¾ to 6¼.

FRIDAY, MARCH 29.—Market for tin shares continues very quiet. In lead mines D'Eresby Mountain advanced to 70, buyers; and Roman Gravels to 8¼. The following are quotations for the day:—Carn Brea, 42½ to 45; Dolcoath, 31 to 33; South Condurrow, 11 to 11⅛; Tincroft, 11¾ to 12⅛; Agar, 4 to 4⅛; Grenville, 3 to 3⅛; Peevor, 6 to 6⅛; D'Eresby Mountain, 65 to 75; East Van, 4¾ to 4¾; Grogwinion, 3½ to 4; Great Laxey, 19½ to 20½; Glenroy Lead, 15s. to 17s. 6d.; Leadhills, 3⅝ to 3⅞; Roman Gravels, 8¼ to 8¾; Rookhope (Lead), 17s. to 19s.; Tankerville, 3½ to 4; Van, 24 to 25; West Chiverton, 13 to 14; West Pateley Bridge, 1¾ to 2¼; Wye Valley, 1¾ to 2¼; West Wye Valley, 3¼ to 3¾; West Tolgus, 70 to 72½; Devon Great Consols, 2½ to 3⅛; Parys Mountain, 8s. to 10s.; Penstruthal, 4s. to 5s.; Chontales, 11s. to 13s.; Eberhardt, 5¾ to 6¼; Flagstaff, 12s. 6d. to 15s.; New Quebrada, 1⅝ to 1⅞; Pestarena, 5s. to 7s.; Richmond, 9½ to 10.

Mr. J. P. ENDEAN.—We regret to announce the death of Mr. JOHN PENGELLY ENDEAN, who has for 30 years been connected with the mining interests of the United Kingdom. His death took place suddenly from apoplexy, whilst examining a mining property near Holyhead, North Wales. The deceased gentleman was in his 59th year, and his sudden demise will be deeply regretted by a large circle of friends and acquaintances. The funeral is appointed to take place this day (Saturday) at the Finchley Cemetry.

PARACOMBE.—Another lode north of the stream has been intersected 8 ft. deep by cutting a road to a new building. The lode is fully 5 ft. wide, composed of gossan, mundic, quartz, rich copper and silver-lead ores. This property, we understand, has been inspected and reported on by thoroughly competent mine managers, with a view of its being brought out before the public. The whole property is very highly spoken of in the locality. The mine is in 6000 shares, and a large number of them are already taken up in the neighbourhood of the mine. It is considered that with judicious management a very small outlay of capital will suffice for putting this mine into a good paying state.

SOUTH MOLTON CONSOLS sold Mine sold a parcel of lead on the 27th inst. at 12*l.* 15s. 6d. per ton. The lode has just been discovered 80 fms. south of the present operations, and at which point it produces lead, and has a very promising appearance.

WEST SETON.—The lode in the 140 is worth more than 3 tons of copper ore per fathom, and has an exceedingly promising appearance. They are raising over 20 tons of tin every four weeks. The accounts at the next meeting will show a larger balance than the last in favour of the adventurers, which, under the circumstances of the depression of the Metal Market since the last meeting, in December, is considered very satisfactory. West Seton, it is confidently believed, will still be a very good mine, a good proprietary, and only in 600 shares. The last sale of copper ore amounted to nearly 1000*l.*

Mining Correspondence.

BRITISH MINES.

ABERDAUNANT.—S. Toy, March 27: In the 15 we have now cut into the lode 10½ ft.; there is no sign of the north wall yet. The grit has nearly left us in the forebreast, and I think as it is dipping west when we commence to drive east on the course of the lode we shall soon get clear of the grit. The lode in the forebreast is looking better this morning than I have seen it before, and we have broken several stones of lead from it.

BEDFORD UNITED.—R. Goldsworthy, Wm. Phillips, March 27: Setting Report: To sink the engine-shaft 2 fms. below the 138, cut trip-plat, put in penthouse, bearers, and cistern, bring down main rods, fix plungers, put in footway, &c., by nine men, for 120*l.*, and a premium of 3*l.* if completed in ten weeks. To drive the 138 east by four men, at 10*l.*; lode worth 15*l.* per fathom. To drive the 115 east by four men, at 9*l.* 10s.; lode worth 18*l.* per fathom. To drive the 103 east by two men, at 10*l.* 10s.; lode 3½ ft. wide, composed of quartz, capel, arsenical mundic, and copper—a very promising lode, and worth for the latter 6*l.* per fm. A rise in the back of the 103 by six men, at 8*l.*; lode worth 9*l.* per fathom. Three stopes in the back of the 115—No. 1 by six men, at 4*l.* 10s.; No. 2 by four men, at 4*l.* 10s.; and No. 3 by four men, at 5*l.* One stope in the 103 by four men, at 4*l.* 10s.; these stopes are worth on an average 9*l.* per fathom. Three pitches to eight men, at 12s. in 1*l.* tribute. A plat for a new balance bob at the 62 by four men, at per bargain of 20*l.* We have two parcels of ore at Morweltham quay ready for sampling on Friday—computed weight 121 tons.

BERTWS-Y-COED.—H. T. Haley, March 25: Engine-Shaft: In sinking the lode is increasing in size, and of a very masterly character, worth fully 25 cwts. of lead ore per fathom. We are now down 5 fathoms below the 20, or deepest level; and, as before stated, I hope to reach 5 fathoms more with the present wheel, we shall then be able to drive east under the fine course of ore gone down in the bottom of the 20. In the 20 the north branch maintains its value—2 tons of lead ore to the fathom; the south branch is worth 10 cwts. per fathom, and looking very well. The lode in the deep adit end is at present unproductive, but on going on east we are bound to cut the run of ore ground east as seen in the shallow adit. I am pleased to report a very great improvement in the shallow adit, finding it difficult to sink on account of the water in the small air-shaft on the back I put the men to rise up from the adit to meet the shaft, in doing so they have intersected the lode, which I have had cut through, and find it to be worth for lead ore 1 ton per fathom. Williams's pitch, in the back of the deep adit, is yielding very good ore, and the men are earning good wages, at a tribute of 6*l.* per ton. I hope to have 12 tons of ore ready for sampling by the middle of next week.

BLAEN CAELAN UNITED.—J. Pell, March 28: After visiting the mines today I have to confirm my previous reports. The winze is still sinking in the same beautiful lode, full of lead intermixed with spar for 6 fms. A most valuable part of the lode has been left standing on the south side, this side of the winze being more solid than the north side of the winze, though on this side 5 ft. was cut into the lode without cutting through it; will produce good saving work when we take down the lode by stoping. When the north side was cut into, 3 fms. higher up the winze, we left off without reaching wall, but met a continual series of branches of spar and prian intermixed with the ore; one branch, 6 or 8 in. wide, I was assured would be likely to change into lead as we went down, its underlie being south. This branch we last week intersected as it dropped into the winze, and had changed into lead, and converted the bottom of the winze into a more uniform valuable piece of ore ground, worth upwards of 4*l.* per fathom. Other points in the mine continue without alteration. To-day I have set 12 fms. to sink the engine-shaft, at 13*l.* 10s per fathom; this will go down parallel with the winze 20 fms. west of it, and will carry a part of the lode with it.

BLUE HILLS.—S. Bennetts, A. Gripe, March 23: The main lode in the 80 fm. level east end is opening out very satisfactorily, and worth 15*l.* to 18*l.* per fathom. The top lode in the east end, in the same level, has not been taken up since last reported on, and consequently there is no change to report in the value. The north lode in the 30 east is still small, although good tinstuff; and, judging from the character of the ground, we think it will soon show an improvement. There is not much change to notice in the shaft sinking on this lode below the adit.

— March 28: Since the above report the top lode in the 80 east has been taken up and found to be worth 10*l.* per fathom.

BODIDRIS.—H. Hotchkiss, March 27: In the 60 cross-cut south we are in very favourable ground for driving, and are making very good progress; the character of the ground is also very favourable for producing large quantities of ore when in the lode, which I think cannot be very far ahead of the present forebreast. In the 45 cross-cut north we are frequently meeting with laces of spar traversing the forebreast in the direction of the lode about ½ an inch thick; the rock is of the best lead bearing character, showing favourable signs of nearing the lode. All other places are much the same as when I advised you last. Each point is being urged on with all speed.

CAMBRIAN MINES.—T. Glanville, March 26: ESGAIR-FRAITH: The eastern shaft is sunk 3 fms. 2 ft. 3 in. below the 23, and is producing 2 tons of copper ore per fathom. The 23 east is extended 14 fms. 1 ft. 6 in.; in the last fathom driven the lode is composed of carbonate of lime and gossan, intermixed with lead ore, worth for the latter 3 tons per fathom; I have no doubt this level will open up valuable ore ground. The rise above the 23 fm. level west is up 3 fms. 2 ft. 5 in., and in another 3 fms. we shall communicate with the winze sunk below the 10.

ESGAIR-HIR.—T. Granville: In driving west from the new shaft the lode is very large, composed of quartz and occasional stones of lead ore. From Friday until yesterday we have had a heavy snowstorm, which has greatly retarded our surface operations, as I was obliged to use all the force available to clear the leats, in order to have the necessary supply of water for the water-wheels. We finished sending away the ore on Saturday for the sampling, which takes place at Swansea to morrow. The sale is dated for April 9.

CARON LEAD.—J. Kitto, March 22: The 10, driving west from the old engine-shaft, still continues to look well, and is yielding very nice ore, with every prospect of further improvement. This level may now be said to have fairly entered the long run of orey ground proved in the adit level between this point and the new engine-shaft. In the 10, east of old shaft, we have reached the bearing part of the lode by continuing the driving in the direction indicated in my last report; it is not yet very strong, being only about 1 ft. wide, but it has a very kindly appearance, and is yielding both lead and copper ores, and considering that it is only a few fathoms from surface the prospects are, in my opinion, most satisfactory. It is necessary to continue the driving of this level for the purpose of ventilating the deeper workings. We are making fair progress with the new engine-shaft, and shall have it completed to the bottom of the mine by the time the new pumping machinery can be got to work. The masons are getting on very well with the buildings, and a great part of the machinery has already been forwarded to the mine, and will be erected as speedily as possible.

CENTRAL FOXDALE.—W. T. Harris, March 23: The engine-shaft sinking below the 105 makes satisfactory progress, and in another month I expect it will be deep enough for the 120. In the 105 west the lode contains a good mixture of lead ore, and is promising for an improvement. In this level east the recent discovery maintains its value, and indicates most favourably. We have cross-cut into the lode for 9 ft., and are not yet through the footwall. We have for the present commenced driving east on the north part, which is worth from 2½ to 3 tons lead ore per fathom. The next level we anticipate will be found much more productive, as it shows most encouragingly in the sole of the present driving. In the 90 east we are putting up a rise to communicate with Kelly's pitch, for ventilation and convenience in delivering the stuff; the lode is worth 1 ton lead ore per fathom. The ground in the 75 cross-cut driving north for the main lode is much easier for progress.—Taylor's Shaft: The 74 east is at present yielding no lead to value, but we are looking for an early change. The ground in the cross-cut north to intersect the main lode is good for progress; we shall urge forward this point, and I have great confidence in cutting the lode productive.—Tribute: We have ten pitches at work, at prices varying from 3*l.* 10*l.* to 9*l.* per ton, and yielding fair quantities of lead ore.

CLEMENTINA.—W. Bennetts, March 27: The lode in the 34 end, north of Watson's shaft, has very much improved in appearance, and for 3 ft. up from the bottom of the end the lode is worth 10 cwts. of lead to the fathom. The lode in the 34 end south is 2½ ft. wide, producing good stones of lead, and I believe that we shall have a good lode in this end before it is driven 6 ft. further. The lode in the 34 end east at present is pinched up small, but showing strong indications of becoming larger and more productive. I would recommend the putting on a full pare of men in each of the bottom ends, for I am as confident as ever I have been that Clementina will prove itself to be a productive and lasting mine. Mr. Jehu Hitchins has been here and carefully examined every part of the mine, both underground and at surface, and has taken some specimens of lead with him that came from the 34 end north.

COMBMARTIN.—J. Harris, J. Comer, March 23: This being our monthly pay and setting we have to-day set the following bargains:—The 28 to drive north-west of cross-course, to cut Harris's lode, by four men, at 4*l.* 10s. per fathom, the month or cut the lode; we expect to have about 6 ft. further to drive to cut the lode; the ground is full of veins and seams of mundic, which lead us to anticipate something good on the lode when cut. The 15 to drive east of Harris's shaft, by four men, at 4*l.* 5s. per fathom the month; we think we are almost at the point of intersection with our middle east and west lode; the lode driving on is fully 4 ft. wide, containing veins of good-looking quartz and small seams of good silver lead embedded in nice looking killas for the production of lead; we are also looking out here for an early improvement. The adit cross-cut to drive north, by four men at 2 l.s per fathom the month; the end is in a beautiful channel of killas, highly charged with seams of mundic, quartz, and a little lead. The end is letting out in re water than it has been for some time past, therefore leading us to think we are getting near the lode, and with such promising features we are looking forward for most encouraging results.

CWMYSTWITH.—March 26: We are pleased to inform you that Gill's upper level, driving east, has further improved since our last report, and the end is now worth 1¾ ton of lead ore per fathom; lode 3 ft. wide, and ground favourable for driving. In the winze below Michell's level east no lode has been taken down. We shall have to sink by the side of the lode for a fathom or two before cutting through the lode, for fear of the water from the level getting through the lode if cut through. In Michell's cross cut, driving north, the ground still continues jointy, and nothing has been seen worthy of remark during the past week. The different stopes and pitches throughout the mine are without any material change, producing their usual quantity of ore. We are busily engaged preparing for another sampling, but the weather has been very much against us, as we have had a very heavy fall of snow, and frost every night for some time past.

DE BROKE.—J. Phillips, March 27: In Wilson's engine-shaft, sinking below the 45, the lode is without particular alteration in size and produce. The lode in the 45, driving east, is unproductive at present, and wet and vughy, making progress slow and difficult. The lode in the 45, driving west, has just been taken down, and shows a considerable improvement; now producing good stones of lead ore in crystallised quartz, and with congenial killas. In the 35 east we are stoping on some ore branches making towards the caunter lode, which, so far as opened, yield very good stuff for dressing. The lode in the trial level, driving east of stope in the back of the 25, has become loose, and is unproductive. The stopes altogether are of equal value, as reported last week. We have been rather delayed in our dressing by snow and frost, but I hope to sample 20 tons of lead ore on Monday or Tuesday next.

DERWENT.—J. Morpeth, March 25: Saturday last being setting-day, I beg to hand you herewith the list of bargains that day set, with estimates of ore, &c.—Jeffries' Shaft: Middle Vein: The 95, 61 fms. east of shaft, is by the side of the vein, and is set to six men at present, at 10*l.* 10s. per fathom. Over this level No. 1 stope is 4 ft. wide, and yields 23 cwts. of ore per fathom. No. 2 stope is 6 ft. wide, worth 15 cwts. No. 3 stope is 7 ft. wide, and yields 20 cwts. of ore per cubic fathom. No. 4 stope is 8 ft. wide, and yields 26 cwts. of ore per cubic fathom. No. 5 stope is 5 ft. wide, worth 14 cwts. of ore per fm. Twe men are stripping down sides over this level, yielding in places 16 cwts. ore per fm. The cross-cut in this level, towards the north vein, has for the present been suspended. In the 93, 134 fms. west of shaft, at the bottom of the great limestone, the vein is 3 ft. wide, composed of limestone, iron, some quartz, and about 3 cwts. of lead ore per fm. No. 1 stope, in back of this level, some 22 fms. behind the end, is 4 ft. wide, and produces 20 cwts. of ore per fathom, and leaving very excellent backs. No. 2 is 3 ft. wide, improved to 17 cwts. of ore per fathom, and growing richer as it follows No. 1 stope. No. 3 stope is at present both small and poor, 2 ft. wide, and worth 7 cwts. of ore per fathom. No. 4 stope is 3 ft. wide, and produces 12 cwts. of ore per fathom. We expect both these stopes to improve as they extend westwards. The sides over this level, where four men are employed, are yielding 23 cwts. of ore per cubic fathom.—Sun Vein: This vein in the level west, under the 70, is assuming a more kindly appearance than for some time past, and we have strong hopes the little limestone stratum immediately over the present end will be found good. In the same level, east of sump, which we are carrying 9 ft. high, the vein is 4 ft. wide, and yields 18 cwts. of ore per fathom. The stope in the back is 3 ft. wide, and yields 27 cwts. of ore per fathom. The stope under the 40, 440 fms. east of engine shaft, is 1 ft. wide of the vein, and worth 6 cwts. of ore per fathom.—Westgarth's Shaft—Middle Vein: The 93, 67 fms. east of shaft, is 4 ft. wide, worth 1½ ton of ore per fathom. The two stopes in back of the 74, west of shaft, are yielding 12 and 14 cwts. of ore per fathom respectively—average width of the vein, 2½ ft. Pumping, drawing, and dressing progressing fairly. The wintry weather so suddenly come to us gives us extra trouble and expense in keeping the floors, &c., clear, but I hope its end is near.

DEVON GREAT CONSOLS.—I. Richards, March 28: Wheal Josiah: Richard's Shaft: In the 300 east the lode is 3 ft. wide, consisting of capel with a little mundic. There are no alterations to notice in the lode in either of the other drivings in this part of the mine, and it has been thought advisable that they should be temporarily suspended during the present depressed state of mining.—Wheal Emma: Inclined Shaft: In Friend's cross-cut south at the 137 east some small branches containing capel and quartz have been intersected, and judging from these branches the new south lode is probably not far in advance of this point.—New Shaft, New South Lode: In the 175 east the lode (4 ft. of which if being carried) is composed of capel, quartz, a small quantity of copper ore, and 3 tons of mundic per fathom. In the 175 west the lode is 2 ft. wide, composed of capel, mundic, and copper ore, worth 1 ton each of the latter minerals per fathom. In the 160 east the lode (4½ ft. being carried) presents a very fine appearance, and will produce 1 ton of copper ore, worth 3*l.*, and 2 tons of mundic per fathom. In Torr's cross-cut south at the 160 east small mineralised branches are being met with, and we hope to reach the south part of the lode in a few feet more driving. In Hodge's winze in the bottom of the 160 east the lode (4 ft. of which is being carried) is composed of capel, quartz, and copper ore; worth 1 ton, or 3*l.*, and 2 tons of mundic per fathom. In Floyd's winze in the bottom of the 160 west the ground is a little more favourable for sinking, and a portion of the lode 2 ft. wide is being carried, which consists of capel, quartz, and some good quality copper ore. In the 100 east, on the south part of the lode (4 ft. of which is being carried), is composed of very fine capel, quartz, and copper ore; worth 1 ton, or 3*l.* per fathom, and mundic worth 4 tons per fathom.

EAST CRAVEN MOOR.—D. Williams, March 28: In the 56, west of shaft the vein has again improved, being at present 3 ft. wide, composed of barytes, limespar, and good patches of lead ore. In the 42 west, to get under the new shaft from surface, the vein is 2 ft. wide, and worth for lead ore 10 cwts. per fathom. I hope to reach the ore-bearing ground next month. I shall set a pare of men to drive the 30 west on Monday next.

EAST DARREN.—March 27: In the 60, east of cross cut, on south lode, the lode is 2 ft. wide, yielding branches of lead-saving work for dressing. In the same level west, on south branch, the lode is 18 in. wide, yielding 12 cwts. of ore per fathom. In the 80, west of cross-cut, on south branch east, the lode is 3 ft. wide, hard for exploring, and yielding 1 ton of lead ore per fathom. In the winze under the 68 the lode is getting stiffer for progress, and yields occasionally good stones of lead ore. In the stopes and tribute pitches there is no change to notice. The machinery is in good order. Drawing and dressing are progressing steadily, and we shall sample on Tuesday next 35 tons of silver-lead ore.

EAST VAN.—W. Williams, March 27: The 55 cross-cut south from Tempest shaft, is now driven 8 fms. 1 ft. 6 in. There is still a little lead in the end, and I am daily expecting to reach the south or hanging-wall. We are preparing for sinking another length, for which purpose we have removed the men from both cross-cuts in the 25 to cut lodge, &c., in the 55.

GAWTON COPPER.—G. Rowe, G. Rowe, jun., March 23: The drivage of the 117, east of engine-shaft, is continued on the north part of the lode in easy ground for progress, which is progressing very satisfactory. The lode in the winze sinking below the 105 east is carried 10 ft. wide, producing mundic and ore to the value of 25*l.* per fathom. The lode in the 95 east is carried 6 ft. wide, producing arsenical mundic impregnated with ore, worth 10*l.* per fathom. All other points are without change.

GLENROY.—R. Rowe, March 26: The engine-shaft is sunk 3 fms. below the 80; there is no alteration in the lode, which is 6 ft. wide, with stones of blende, and this week we have seen a little lead in the quartz part of the lode.

GOGINAN.—March 27: The lode in the pitch over the 130, east and west of western shaft, has improved a little, and now producing from 12 to 14 cwts. of ore per fathom. The lode in the pitch, east and west of winze below the 120, 45 fms. west of Bryn Pica shaft, if 5 ft. wide, and yielding 10 cwts. of ore per fm. In the pitches over the 120, 35 and 6 fms. west of Bryn Pica shaft, the lode will produce from 9 to 10 cwts. of ore per fathom. In the pitch over the same level, 1 fms. west of western shaft, the lode is worth 12 cwts. of ore per fathom. The lode in the pitch over the 100, 10 fms. west of western shaft, will yield 12 cwts. of ore per fathom. In the pitch over the 100, 12 fms. west of western shaft, the south part of the lode is producing ¼ ton of ore per fathom. In the pitch over same level, 20 fms. west of Tay ore's shaft, the lode yields 10 cwts. of ore per fm. Surface operations are being vigorously carried on, and machinery working well.

GREAT DYLIFFE.—Evan Evans, March 27: The stopes over the 132 east and west are still looking poor—not worth more on an average than 5 dwts. per fm. The stopes over the 95 are much the same as when last reported—still holding good. The stope under the 95 is worth from 25 to 30 cwts. per fathom. In the drivings on the new lode there is a nice bunch of ore in the forebreast to-day. At the 105, east of Bradford shaft on Llechwed-du lode, the driving to the west of cross-cut is holed through to the old workings. We are now rising to communicate to a midway level under the 95 for ventilation; we expect this through in a fortnight, when we shall commence stoping the ground we have already opened in this level, and resumed the driving of the level forward east. We have also in this level two men stripping the lode to prepare it for stoping. A setting report will be sent next week.

— Evan Evans, March 28: We have sold to-day 40 tons of lead ore to Mr. George Burr, at 10*l.* 15s. per ton, realising 430*l.*

GREAT RETALLACK.—J. Harris, March 25: There is no change in the 53 fm. level west since last reported on. In the 53 east we have to-day cut into a nice leader of of blende, worth fully ½ ton per fathom, with a most promising appearance for further improvement, which I hope I shall have to report in my next.

GREAT WHEAL RODD (Silver Lead).—March 26: During the past fortnight good progress has been made in driving the adit level, and as we approach nearer the lode stones of gossan, showing good spots of mundic, are more frequently met with; this, together with the fact that the water is lowering in the shaft sunk on the course of the same, indicates that the lode will soon be intersected, which is anxiously looked for, and sanguine hopes are entertained as to the result.

GROGWINION.—John Kitto, March 25: I am glad to inform you that the lode in the winze sinking below the deep adit level on No. 3 still continues good, and is yielding ore as rich as ever, and we have commenced a new cross-cut north for the purpose of intersecting No. 4 lode almost opposite this point, and where we expect to find it equally productive. This is a most interesting and important operation, particularly as regards our future and deeper workings. The 56 driving east on No. 4 lode has been exceptionally rich during the past month, but all the other levels continue much the same as for some time past. The stopes are looking very well throughout the mine, and from our large reserves we have been able to increase their number, and consequently to raise more ore; and we have sampled for the current month 150 tons, for sale on the 31st instant.

HINGSTON DOWN CONSOLS.—Thomas Richards, March 28: Bailey's Shaft: In the 172 east the lode is improving; the prospects here are again very encouraging, and from present appearances a great change for the better may shortly be expected; present value, 18*l.* per fathom. The stoping of the ground in the west end of the shaft for the skip-road is progressing favourably, and whilst this is being done we shall be getting in the dividings, casings, &c., below, so as to hasten on this necessary and important work for the easier discharge of stuff from the 172 with as little delay as possible. The 162, west of Nicholls' winze, is without change. The sampling to-morrow will be about 170 tons.

KINGSTON CONSOLS.—J. Chynoweth, March 28: The shaftmen are down the required depth in engine-shaft, below the 40 fm. level, to fix bearers and cistern; also trip-plat completed at the 40. In the 40 fm. level west end the lode is 2 ft. wide, worth 2 cwts. of lead and 5 cwts. of blende per fathom; this level has for the last 5 fms. been driven through ground very much disturbed, but at the present point the lode is now taking its right bearing, and looks very promising. The 40 fm. cross-cut south, to intersect the south lode, has been driven about 2 fms. through ground composed of spots of lead and blende, but not yet sufficiently far enough to cut the main lode. The 30 fm. level west end is suspended for the present time, those men being engaged in the cross cut at the 40. In the 30 the south lode is 3 ft. wide, worth 4*l.* per fathom for lead and blende; although not very high in value, this is a splendid looking lode, composed of beautiful lead, blende, quartz, and gossan. The cross cut south at the above mentioned level has been driven about 2 - fms, but the lode has not yet been intersected. The lode in No. 3 winze, sinking below the 30, is worth 5*l.* per fathom for lead and blende. No. 1 stope, in back of the 30, is worth 4*l.* 10s. per fathom; No. 2 ditto is worth 3*l.* per fathom; No. 3 ditto is worth 15*l.* per fathom; No. 4 ditto is worth 6*l.* per fathom for lead and blende. The lode in the 18 west end is 5 ft. wide, worth 4*l.* per fathom; the value of this end is not very high, but it is of the most promising character. The south lode is 3 ft. wide, and worth 7*l.* per fathom for lead and blende; the composition of this lode is splendid, and we shall in a short time be in a position to commence stoping in this level. For a speedy development of this lode we have commenced to cross cut by six men, about 30 fms. in advance of the present end; the cross-cut has been driven about 2 fms.; according to plan, if the lode keeps the right bearing, we have about 6 fms. more to drive. In No. 1 pitch east, in back of the 18, driving for stopes, the lode is worth for lead and blende 7*l.* per fathom; men making good wages. In No. 2 west ditto the lode is worth 5*l.* for lead and blende. In No. 3 pitch the lode is worth 4*l.* per fathom for lead and blende. In No. 4 ditto the lode is worth 3*l.* per fathom for lead and blende. In No. 5 ditto the lode is worth 4*l.* per fathom for lead and blende. We do not hesitate to say that the mine throughout is of a most promising character. All the machinery is in good working order.—Memorandum by Mr. General Saunders, one of the directors: "The ground in this mine is so easily worked that stopes worth a certain sum represent actually double the value, as may be understood by the fact that we have sold monthly so large a quantity of lead and blende; the sale on the 28th of this month realised 30*l.*—equal to working costs even under the present depressed state of the market."

KIT HILL TUNNEL.—H. Bennett, March 23: The lode in the western end, on the silver lode, is 4 ft. wide, presenting a splendid appearance, composed of gossan, prian, sulphur, mundic, and some good silver ore, and I think we are near a good improvement; that this lode in depth will prove very rich I have no doubt whatever. All other points remain without change.

LADYWELL.—Arthur Waters, March 28: The new south shaft is made good to within 3 fms. of the adit level. The 20 south, above adit, is in a lode 2½ ft. wide, yielding good stones of lead ore. The 20, north of said shaft, is going forward towards ore ground, but the lode at present is of no value. The adit level south is at present in a small lode, and not to value. The winze below this level is worth ½ ton of lead ore per fathom. The 16 south is suspended for the present, and the men put to rise against the above-named winze; lode worth 15 cwts. per fathom.

LIVINGSTONE CONSOLS.—Wm. Vivian, March 28: In the 40, west of shaft, we have cut through the lode; it is 4 ft. wide, very kindly in appearance, producing rich stones of copper ore and a little tin, with every appearance of further improvement.

LLAN GAN.—Capt. W. Michell, March 27: Engine-Shaft: In the north cross-cut we have cut Wright's lode, and driven into it 9 ft., but without sign of the north wall yet; the part cut through is strong, masterly, and promising. There is every probability that rich deposits of lead ore will be met with as we drive west on the course of the lode.—Old Engine Shaft: The tribute pitches are about the same; the men can earn good remunerative wages. Our last sampling has been shipped. We have let the halvans and slimes on tribute.

MARKE VALLEY.—W. George, J. Steniake, March 28: The various exploratory bargains reported in our last are being urged on as fast as the nature of the ground will admit; but there is no change in any point worthy of notice.

MEDLYN MOOR.—Joseph Prisk, Charles Rowe, March 28: At our monthly setting held on the 23rd inst., the following bargains were set. The flat-rod shaft to cut down and secure from the shallow level to the 17, by six men, at per bargain of 23*l.*; we intend making this our working shaft, which will enable us to deepen the mine with greater dispatch and much less cost than sinking the engine-shaft for the present, as the ground here is much easier for sinking, and the lode in the shaft, which will produce tin to assist to meet the cost of sinking to some extent. A rise in the back of the 17 on No. 1 south lode, against the said shaft, by six men, at 7*l.* per fathom; lode 1 ft. wide, producing saving work. The 27 to drive west on No. 2 north lode, by four men, at 4*l.* 10s.; this end is nearing our main cross-course, and we are looking forward to a good improvement here shortly. The 32 to drive west of shaft, by two men, at 4*l.* per fathom; lode 1 ft. wide, worth 3*l.* per fathom, and opening out good paying ground. One pitch in the 33, to four men, at 13s. 4d. in 1*l.*

MELLANEAR.—John Gilbert, March 27: The lode in the 40, west of the rise, west of the skip-shaft, is 2 ft. wide, and worth 1½ ton of copper ore per fathom. The stope in the back of the 67, east and west of No. 1 rise, is worth 5 tons of ore per fathom. The stope in the back of this level, east of No. 3 rise, is worth 4 tons of ore per fathom. The stope in the bottom of this level, west of the cross-course, is worth 6 tons of ore per fathom. The ground in Gundry's shaft continues favourable for sinking, and we calculate that the shaftmen will sink about 2 fms. again this month. The lode in the 90, west of Gundry's shaft, is 2 ft. wide, and worth 1 ton of ore per fathom. The lode in the 80, west of shaft, is 3 ft. wide, and worth 2 tons of ore per fathom. The lode in the stope in the back of this level, east of shaft, is still worth 5 tons of ore per fathom. The lode in the 70, west of shaft, is 3 ft. wide, and worth 2 tons of ore per fathom. The lode in the 60, west of shaft, is 4 ft. wide, and worth 4 tons of ore per fathom. The lode in the winze in the bottom of this level is worth 3½ tons of ore per fathom. The lode in the rise in the back of this level is worth 3 tons of ore per fathom. The lode in the 50, west of shaft, is 4 ft. wide, and worth 4 tons of ore per fathom. No. 1 rise in the back of this level, east of shaft, is worth 5 tons of ore per fathom. No. 2 rise in the back of this level, west of shaft, is still worth 6 tons of ore per fathom. There is no change to notice in any of our other bargains.

MELYNDWR.—John Kitto, March 25: We have commenced to sink the new shaft for the purpose of more fully developing the south lode, and made good progress until we reached the level of the river, when the feed of water became so strong as to necessitate the immediate fixing of the pumps; so we are now having this done, and shall complete it in a few days, when the sinking will be resumed with full force. I have no change to report to you from any other part of the mine, and in future I shall not work any part of the north lode that will not pay expenses.

MONYDD GORDDU.—James G. Green, March 28: I have been well pleased with my inspection of the mine to-day. The shaft is going down in a splendid channel of killas. The winze holed into the end of the 24 west this morning, and we shall now be able to open the ground at this point rapidly for stoping. There is a branch of lead in the side of winze 3 ft. wide and solid; we shall open on this as soon as the ground is squared. There is nothing new to report from the other parts of the mine. Good progress is being made with the wheel-pit and new road. Saturday is our measuring and setting day.

MORFA DU.—T. Mitchell, March 28: I am pleased to say that operations are going on in regular order here, and the sinking of the engine-shaft is progressing favourably.

NORTH CORNWALL.—T. Doidge, March 28: We are driving the end, which is on the great caunter lode, and I am pleased to say we have a very fine-looking lode, which is fully 4 ft. wide, and producing splendid stones of silver lead ore and mundic. The lode has improved in appearance in the last 5 ft. we have driven through. We are continuing the cross cut in search of the north and south lode, north of the great caunter lode, which lode has thrown the north and south lode at this point out of its course. The water is issuing from the end freely, and small branches of mundic are intermixed with the country, which I regard as being very favourable indications of our being near the lode.

NORTH LAXEY.—R. Rowe, March 26: There is no change to report in the mine to day, excepting in the 84 end, where the lode—about 1 ft. wide—is saving stuff for lead. I hope this end is now entering paying ground. The 110 stope is worth 10 cwts., and the 60 stope about 15 cwts. of lead per fathom.

PANDORA.—H. Nottingham, March 27: New Lode: The 33 driving south is looking well, and now worth 30 cwts. lead and 30 cwts. blende per fathom, with every appearance of improvement. The back of No. 2 stope, in the 33 south, yields a large quantity of stuff, the present value being 25 cwts. lead and 30 cwts. blende per fathom. No. 1 stope is worth 10 cwts. lead and 15 cwts. blende per fathom. I am daily expecting the 33 will let down the water from the 25.—Goddard's Lode: The 33 driving north is yielding 30 cwts. soft rich lead and 20 cwts. blende per fathom. This level going south is at present poor for lead, but shows indications of a course of ore ahead; worth for blende 30 cwts. The 23 north is worth 10 cwts. lead and 15 cwts. blende. No. 1 winze south having been drained by the 33, sinking has been resumed on a lode worth 25 cwts. lead and 20 cwts. blende per fathom. I calculate 20 tons lead and 30 tons blende have been broken this month, and a few more hands having been obtained for surface, I look forward to a good month's dressing. 30 tons blende were sold on the 25th inst.

PARYS MOUNTAIN.—T. Mitchell, March 28: We have no change of any importance in the 90 south since my last report; but the 90 west of cross-cut is looking a little better this week, and yielding about 1 ton of copper ore per fathom, of a better quality. Saturday next will be setting-day. We have had a heavy snow storm here to-day.

PATELEY BRIDGE.—Capt. Williams, March 28: The Rake vein in the 30 east is worth 40*l.* per fathom for lead ore. All other points are producing lead ore as usual.

PENHALLS.—S. Bennetts, P. Vian, March 23: The lode in the 70 east end is 2 ft. wide, and worth 10*l.* per fathom. The 60 east on the south part is worth 6*l.* per fathom. The 55 east, on another section of the lode, is worth 12*l.* per fm. A cross cut has been commenced near the 50 east end to intersect the north part of the lode, which in the stope over this level is the most productive part. The 48 west is just now not of much value, and the 45, west on another section of the lode, is worth 6*l.* to 7*l.* per fathom.

PENSTRUTHAL.—Wm. Polkinghorne, March 28: We are making good progress in cutting the trip and eastern-plats at the 88. We shall case and fix the shaft and fix the new pitwork, and make everything complete for sinking the shaft in four or five weeks from this date. In the 46, driving south, we are not yet through the large lode, and it is producing good stones of tin. All the barbargains in the mine are much the same in value as when the directors were down. We sampled on the 19th inst., about 100*l.* worth of copper ore. We shall sell about 3½ tons of tin on Saturday next.

PRINCE OF WALES.—J. Andrews, March 27: There is no change in the deep or shallow adit ends, west of Vigar's shaft, since last report.

PROSPIDNICK GRANITE QUARRY.—J. Hodge, March 27: The tenders for excavating a road and completely clearing the quarry will be considered on Monday next. The work is to be completed and the quarry handed over to the Mount's Bay Company, in a state equal to the execution of any orders that may be obtained, within two months.

RED ROCK.—John Kitto, March, 22: I am still unable to report the size or value of the lode in the 72 west of the engine-shaft, as the communication referred to in my last has not yet been effected; I hope, however, to do so in a few days. The lode in the 60 driving east is still looking well, and is yielding about the same quantity of ore as stated in my last—from 20 to 25 cwts. to the fathom, and the stope in the roof of the same level is worth about 30 cwts. to the fathom. We have commenced to drive a new level above this for the same run of ground, and the lode is already looking well, and yielding ore in paying quantities. There is no change of importance in the 10 east of shaft, or in any other part of the mine. The tribute pitches in the various levels are looking pretty well, and are yielding a fair quantity of good leadstuff for the dressing-floors, and since my last we have sold and delivered to Mr. George Burr 40 tons of ore, at 10*l.* 2s. 6d. per ton.

ROMAN GRAVELS.—Arthur Waters, March 28: The 65, south of new engine-shaft, is worth 3½ tons of lead ore per fathom, and looks like improving. The 80, south of this shaft, is worth quite 4 tons per fathom. The 95, south of shaft, is worth 2 tons per fathom; the lode in this end looks well for making a rich course of ore shortly. The men working here with the boring machine are now driving at the rate of 4 fms. per month, which is double the distance they could do by hand. When the men have had a little more practice with the machine still greater progress will be made. The new engine-shaft is now nearly 15 fms. below the 95, and will be deep enough for the next (110) level by the end of the present working month. The stopes, &c., are yielding ore as for some time past. A very heavy fall of snow here to-day.

SOUTH CONDURROW.—W. Rich, W. Williams, H. Abraham, March 27: The Plantation shaft is cased and divided to the 50, and ladder-road fixed. We shall now begin to cut plat. The water is increased in this shaft, by which we infer we are getting near the tin lode. The ground is favourable for driving in the 30 cross-cut, north of King's shaft. The 40 end west is worth 8*l.* per fathom. The winze in the 40 east is worth 10*l.* per fathom. We expect to hole this winze with the rise in the back of the 50 in a few days. The 50 east is worth 6*l.* per fathom. The winze in the 50 west is worth 40*l.* per fathom. The rise in the back of the 63 is worth 30*l.* per fathom. The 70 end west is worth 16*l.* per fathom. The rise in the back of the 70, towards Plantation shaft, is worth 7*l.* per fathom. We have commenced to drive the 70 west of cross-course, and to the east of King's, with the view to communicate with the stopes in the back of the 80. The 80 end east is worth 9*l.* per fathom. The 93 east is worth 10*l.* per fathom. The 93 west is worth 7*l.* per fathom.

SOUTH CWMYSTWITH.—John Kitto, March 25: Since my last monthly report steady and satisfactory progress has been made in every department both underground and at surface, but I have no fresh discoveries of importance to report to you. Several of our miners have been engaged during the greater part of the month in clearing out the orestuff which had been previously broken, and lying in the levels and stopes underground, and there still remains a great deal to be removed before the mine will be properly clear, and a great part of the current month will be occupied in a similar way. This orestuff is, of course, being taken to the dressing floors. I am glad to say our new head weir has stood the floods remarkably well, and has not shown the least sign of giving way. The crushing and dressing of ore is regularly progressing, and the new machinery doing its work splendidly, and we have sampled 40 tons of lead ore for sale on March 30.

SOUTH DARREN.—Henry Jam a, March 28: I have to-day visited all the underground bargains. The lode in the shaft is still producing saving work. The lode in the 100 end west is increasing in size, but is the same in value—10*l.* per fathom. The winze and stopes in the 90 are equal in value to last week. In the 90 the lode is getting stronger, with every indication necessary for the earliest improvement. There has been no lode taken down in the 80 end since last week, therefore it remains the same as when last reported.

SOUTH TOLCARNE.—Wm. Rich, James Knotwell, March 27: In sinking the

boundary shaft we met with water, which retarded the sinking for a few days; but this has abated considerably, and the sinking has been resumed. The lode in the shaft has a strong and kindly appearance.

ST. HARMON.—J. Kitto, March 23: In cross-cutting in the 67, west of engine-shaft, we have got into a very strong and kindly-looking lode, which is yielding both lead and copper ores, and letting out a considerable quantity of water; in fact, it is much more promising than anything we have seen in this level since the driving was first commesced. In driving the same level eastward the ground is getting more firm and congenial for the production of ore, and we still continue to find some strings of lead, which I am in hopes will soon gather up and form one leading branch of a profitable character. The ground in the 43 cross-cut has considerably changed, and has every appearance of getting close to the south lode; I expect shortly to have to report its intersection. There is nothing particularly new in the 35, either east or west of the shaft, but the stope above this level and winze sinking below are both yielding good ore, and never looked better. We have commenced crushing and dressing, and shall soon have a parcel of ore ready for market.

ST. PATRICK.—W. Francis, March 27: I am pleased to report a steady continuance of all the favourable indications in driving on the cross-course in the 120; good workable ground, mixed with lead ore and a firm heading wall-side. The 60 yards cross cut in the chert is without change to note; the measures are still, however, of the best-bearing kind, and progress throughout is satisfactory.

TANKERVILLE.—A. Waters, March 28: Watson's engine-shaft is 9½ fms. below the 192, and the country rock is of splendid character, and we are expecting to cut into a good course of ore at the next level. The 192 west is through the switch, the lode in the present end being 3 ft. wide, and worth 1 ton of lead ore per fathom. We have been shooting into the north side of this level behind the end for winze plat, and find the north part of the lode to be worth 1½ ton per fathom. We are preparing to sink a winze at this point, and calculate upon going down in a good lode. The 192 east is at present in a small lode, and not to value. In the bottom of this level, 9 ft. east of shaft cross-cut, there is a lode 6 ft. wide, in which we are sinking a winze, which is down 9 ft.; the lode in the present bottom is worth 5 tons per fathom; this looks like the top of a good bunch of ore. The stopes in back of this level, north and south of the two winzes, are yielding ore in paying quantities. We have to-day sold 100 tons of lead ore, realising 155l., which will be delivered forthwith.

TEMPLE.—March 27: No. 1 level, on the main lode, continues as last reported, of the most favourable appearance for the produce of lead, but some few fathoms more must be driven to reach the point at which the lead discovered in No. 2 may be expected to be met with in this level. In No. 3 level a decided improvement has occurred since last reported on. The end has just reached the point immediately above that at which the discovery was made in No. 2, and is evidently opening on a continuance of the same course of lead. As there are 15 fms. between these two levels a very considerable quantity of stoping ground is being laid open. Surface operations progress slowly, in consequence of bad weather and snow.

TREBEIGH CONSOLS.—J. Gifford, March 27: In driving south of the engine-shaft at the 45, on the north and south branch or lode, as referred to in my last, we have broken some good stones of lead ore, and the end is letting out more water; set to drive by six men, at 6l. per fathom, stent 2 fms. In the 45 east the lode is 1½ ft. wide, of the same character as last reported; set to drive by four men, at 3l. 10s. per fathom, stent 4 fms. We have put two men to sink a few fathoms on the Ruby lode, to see if it improves in depth.

TREWARVAS CLIFFS.—John Curtis, March 26: The engine shaft is secured to the deep adit level, and the footway completed; the level is cleared and driven west about 40 fms. In the first part of the drivage the lode was small and unproductive, but gradually increased in size, with occasional lumps of copper ore; at about 30 fms. it improved, and commenced to let out water freely, a sure indication of the proximity of mineral. In the last 4 or 5 fms. its value increased considerably, and the men are now working in a good course of copper ore standing from the bottom to the top of the end. On driving 30 fms. further west we shall reach the flookan course, where a rich deposit may be anticipated. I consider we have excellent prospects in this mine.

VAUGHAN.—March 27: In the 30 east the ground is chiefly composed of carbonate of lime and killas, letting out a great deal of water, but unproductive for lead. In the stope over this level the lode is large, yielding from 15 to 18 cwts. of lead ore per fathom. In the stope over the 20 east the lode is hard, and greatly fallen off in value, now yielding 8 cwts. of lead ore per fathom. In the deep level east nothing has been done since last report, the men being engaged in casing and dividing the engine shaft down, which is nearly completed, when the stuff will be drawn up, and driving resumed with as little delay as possible.

WEST CRAVEN MOOR.—D. Williams, March 28: The vein in Blackhill adit level is at present 4 ft. wide, and producing good branches of lead ore. Nos. 2 and 3 stopes in back of level are of the same value as reported in my last.—New East Shaft: In the 20 east, upon No. 3 vein, the latter is heaved south by a cross vein, which so far as proved is composed chiefly of gossan and occasional stones of ore. In the 20 east, upon No. 2 vein, the lode is 1 ft. wide, and producing saving work for dressing. No. 2 stope in back of level, by four men; vein 3 ft. wide, worth 2 tons of lead ore per fathom. I have sold another parcel of pig-lead to Messrs. Hutchinson and Son, which realised, after paying royalty, 340l.

WEST GODOLPHIN.—John Pope, March 23: Monthly Report: Caunter Lode: The 70, sinking at Wilson's engine-shaft, by 16 men; lode small—distance worked, 9 fms. 5 ft. We shall commence driving the 80 early in next month. The 70, driving north, by one man and one boy; the lode is 1 ft. 3 in. wide, worth 2l. per fathom—distance worked, 8 fms. 3 ft.; producing tin.—Wilson's Lode: The 70, driving west, by eight men; lode 5 ft. wide, worth 12l. per fathom—the distance worked is 8 fms.; producing tin. The 70, driving east, by four men; lode 5 ft. wide, worth 10l. per fathom—distance worked 3 fms.; producing tin and copper.—Caunter Lode: The 60, driving north, by two men; lode 1 ft. wide, composed of low price tinstuff—distance worked, 16 fms. 5 ft.—Pink Lode: The 60, driving west, by one man and one boy; lode small—distance worked, 2 fms.—Wilson's Lode: The 60, driving west, by two men; the lode is 2 ft. 6 in. wide, worth 4l. per fm.; distance worked, 68 fms. 4 ft.—producing tin. The 60 west, stoping in the bottom, by nine men; lode 6 ft. wide, worth 20l. per fathom; producing tin. The 60 west, sinking in the winze, by six men; the lode is 5 ft. wide, worth 18l. per fathom—producing tin. More lode standing in south side. A stope in bottom of the 60 west, by six men; the lode is 7 ft. wide, worth 15l. per fm.—producing tin and copper. A stope in the bottom of the 60 west, by six men; the lode is 9 ft. wide, worth 17l. per fathom—producing tin and copper. A stope in the bottom of the 60 west, by nine men; lode 10 ft. wide, worth 18l. per fm.—producing tin. A stope in the back of the 60 west, by four men; lode is 5 ft. wide, worth 8l. per fathom, producing tin. A stope in back of the 60 west, by four men; lode 2 ft. 6 in. wide, worth 4l. 10s. per fathom, producing tin and copper. A stope in the bottom of the 60 east by six men; the lode is 6 ft. wide, worth 14l. per fathom, producing tin. A stope in the bottom of the 60 east by 15 men; lode 15 ft. wide, worth 30l. per fathom—producing tin. A stope in the back of the 60 west, by four men; lode 4 ft. wide, worth 6l. per fathom—producing tin and copper. The 50 driving west, by one man and one boy; the lode is 3 ft. wide, producing low price tinstuff—the distance worked is 68 fms.—Pink: The 50, driving west, by four men; the lode is 1 ft. 3 in. wide, composed of low-price tinstuff; distance worked, 24 fms. Hope lode in the 20, rising against shaft, is 3 ft. wide, worth 5l. per fathom. I am hoping we shall communicate this shaft with the rise very soon, as we can hear any person holloing from the shaft to the rise. In the 40 we have blasted some holes in the west, and it looks very much like Hope lode; 2 ft. wide, producing a little tin, but we are not certain yet if it is Hope lode or the caunter gone off in another direction. We sold on Thursday 10 tons 2 cwts. 2 qr. 20 lbs. of tin at 86l. 7s. 6d. per ton, and calculate to sell about 10 tons more on Monday next.

WEST GODOLPHIN.—John Pope, March 27: Wilson's lode in the 70 driving west is improved since last report; worth 15l. per fathom. There is no other change worthy of notice.

WEST GOGINAN.—J. Kitto, March 22: Up to the present time no change of importance has taken place in the 48 east; the lode is large and jointy, and yields a little ore throughout, but so far it is not sufficiently rich to save for dressing. I purpose driving on eastward for another month, and then to cross-cut the lode to the full width, in order if possible to ascertain if the driving of the level is being carried on in the most productive part, as we are nearing a point where it is very wide in the adit level, and it is quite possible that there may be some better ore on either side. The south lode has not carried down sufficiently strong to justify further prosecution, and I have, consequently, suspended operations at this point, and resumed the driving of the deep adit level west, where the lode at present looks more kindly than in any other part of the mine.

WEST PATELEY BRIDGE.—D Williams, March 28: No. 2 Shaft: Good progress continues to be made in sinking this shaft below the 20 fm. level. The vein in the bottom is opening out most satisfactorily, being fully 2 ft. wide, and producing good stones of ore. In the 20 east the vein is 2 ft. wide, and worth 10 cwts. of lead ore per fathom. In the 20 west the vein is at present disordered, and heaved a little to the north of its proper bearing by a cross lode. The stope in back of this level is worth 15 cwts. of lead ore per fathom.—Craven Cross Shafts: North shaft is being reopened as quick as possible by a full pare of men.—50 fm. Level: I am pleased to say that the vein in the winze below this level is improving as we get down, being fully 3 ft. wide, and carrying a leader of lead ore worth 20 cwts. per fathom. No other change to notice this week. The weather is very unfavourable for all surface operations.

WEST ROSKEAR.—H. Stephens, W. Bennetts, March 28: Since our last report the lode in the 12 fm. level, west of Lanyon's shaft, is very much improved, and will now yield fully 2 tons of good quality copper ore per fathom. It is daily improving as the level is being extended. The lode is large, and judging from present appearances it bids fair to soon result in an excellent course of ore. All the surface work is progressing satisfactorily.

WEST TANKERVILLE.—Arthur Waters, March 28: The 86, south of boundary shaft, is worth ½ ton of lead ore per fathom. The stope in this level, south of winze, is worth ¾ ton per fathom. The stope north of the winze is worth ½ ton per fathom. The 75 south is in a lode 15 in. wide, yielding stones of lead ore. The three stopes in back of this level, one north and two south of winze, are worth together 2¼ tons of lead ore per fathom. The two stopes in bottom of the 63, north and south of winze, are worth each 1 ton of lead ore per fathom. The stope in the back of this level, south of shaft, is worth 1 ton of lead ore per fathom.

WEST WHEAL TOLGUS.—March: Since your visit here on Monday we have got on very well in drawing out the water; it was in fork last night, and the bottom level and Taylor's shaftmen commenced working. The lode in the 145 end west is without alteration to notice: there has not been much of it broken since last report, when it yielded about 5 tons of ore per fathom. The same remark may be applied to the lode in the No. 2 winze below the 135, as there has not been much done on the lode, from the same cause that hindered us in the 145 end (water being in); we cannot report it to be worth more than about 6 tons of ore per fathom. The lode in the 135 end west is all the width of the end spotted with ore, but not enough to value. The lode in the 125 end west is 2 ft. wide, with a little ore, and a large stream of water flowing from it; it appears that the lode is getting wide; we shall see more of what it means by the end of the week. We have not met with any lode in the 125 cross-cut south yet.—Richard's Shaft: We shall set the shaft to sink below the 95 on Friday. There is no alteration in the other bargains at this shaft.

WEST WYE VALLEY.—John Kitto, March 23: We have not yet been able to see much of the lode at the 52, or bottom of Brooke's shaft, as the men have been engaged during the greater part of the past month in dividing and casing the shaft, fixing ladder-road, and cutting lodge, but, with the exception of the latter, the whole of this work has been completed, and the driving of the level eastward commenced, and the part of the lode opened upon shows good prospects. The same remarks apply to the 52, west of shaft, where the driving has also just been commenced, but so little of the lode has been laid open that I am at present unable to give either its size or value. The 40, driving east from Brook's shaft, looks exceedingly promising, and we are expecting to get into another run of rich ore ground; in fact, I have not seen a more kindly looking lode in the mine, and as this level is now getting near the point where the ore has been seen at surface we may, I think, reasonably anticipate a speedy improvement. The lode west of the cross-cut between the two shafts is looking very well, and is worth about 25 cwts. of lead ore to the fathom. The stopes in the different levels are looking much as last reported, and are worth, on an average, about 30 cwts. of ore to the fathom. I am pleased to say that the present prospects of the mine throughout are exceedingly good, and that we shall sample 60 tons of lead ore on Tuesday next instead of 40 tons.

WHEAL CREBOR.—John Andrews, March 25: Setting Report: To drive the 120 end east, by four men, at 6l. 10s. per fathom; lode 4 ft. wide, worth 6l. per fm. No. 1 stope in the back of the 120, by six men, at 4l. 5s. per fathom; lode 3½ ft. wide, worth 10l. per fathom. No. 2 stope in back of the same level, by six men, at 3l. 10s. per fathom; lode 4 ft wide, worth 12l. per fathom. To drive the 108 end east, by two men, at 7l. per fathom: lode small and poor. To drive the 72 end east, by two men, at 4l. 5s. per fathom; lode 4 ft. wide, composed of quartz and capel. To drive the 48 end east, by two men, at 6l. 10s. per fathom; lode 1 ft. wide, yielding a little arsenical mundic, but is poor for copper. To sink the new shaft below surface, by nine men, at 16l. per fathom; lode 3 ft. wide, composed of quartz, capel, mundic, and spots of copper ore.

WHEAL GRENVILLE.—T. Hodge, March 25: The following bargains were set on Saturday last for two months:—Goold's shaft to sink below the 150, by six men, at 23l. per fathom, to be paid for cutting tip plat 10 ft. long, 10 ft. wide, and 7 feet deep—15l. To drive the 150 north of west, by six men, at 10l. per fm. The 140 to drive east, by six men, at 9l. per fathom.—Western Shaft: The 150 to drive east, by six men, at 12l. per fathom. No. 1 stope in the back of the 150 east, by six men, at 7l. per ton. No. 2 stope in the back of same level, by eight men, at 5s. 3d. per ton. No. 3 stope in the back of same level, by eight men, at 6s. 3d. per ton. The stope in the bottom of the 150, by six men, at 5s. 3d. per ton. The 140 to drive east, by four men, at 7l. per fathom. The 130 to drive west, at 9l. per fm. To stope the back of said level, at 6s. per ton, by six men. Ten tribute pitches were set to 28 men, at an average tribute of 10s. 10d. in 1l. On the whole, I see no change in the value of the bargains since my report for the general meeting.

WHEAL KITTY (St. Agnes).—Stephen Davey, Richard Harris, March 23: New Shaft—Pryor's Lode: The lode in the 154, driving west of shaft, is worth for tin 7l. per fathom. The lode in the 142, driving west of shaft, is worth for tin 7l. per fathom. The lode in the rise in back of the 142, west of shaft, is 2½ ft. wide, and worth for tin 9l. per fathom. The lode in the 142, driving east of shaft, is worth for tin 7l. per fathom. The lode in the 106, driving west of shaft, is worth for tin 6l. per fathom. The lode in the 94, driving west of shaft, is worth for tin 10l. per fathom. The lode in the 65, driving west of shaft, is worth for tin 7l. per fathom.—Old Lode: The lode in the 100, driving west of engine-shaft, is at present disordered by a gossan. The lode in the 90, east of engine shaft, is worth for tin 6l. per fathom.

WHEAL NEWTON.—H. Bennett, March 28: I am glad to say that the stopes in the back of the 40, east of Cook's shaft, are looking well, and yielding very rich silver ore. We have sampled the last four weeks 13 cwts., worth 500l. per ton; 25 cwts., worth 360l. per ton, and between 8 and 9 tons, worth 66l. per ton. Between 10 and 11 tons more will be sent to London this week, worth about 70l. per ton—total value (say) 2100l. for four weeks. The workings at all other points are without change.

WHEAL UNY.—Wm. Rich, M. Rogers, March 25: The lode in he 160, east of Goodinge's, is unproductive at present. The 160 end west is looking very promising, now worth 12l. per fathom. The 150 west is worth 12l. per fathom. The 150 east is worth 8l. per fathom. We are cross-cutting north at the 140 east to ascertain if there is any more lode standing in that direction.

WYE VALLEY.—John Kitto, March 22: We have got the pumping machinery fixed and at work in Tippett's shaft, and the sinking of the same resumed with a full set of men. The lode is very strong and kindly, and is yielding some good saving lead stuff, which I have no doubt will further improve as we go down. The 22 driving east has further improved in appearance, and is producing both lead and blende, and the winze sinking below this level is in good ore, and looks exceedingly favourable for the next deeper level, which is being driven up from the engine-shaft, and which I have not the least doubt will be found very rich on reaching this point. I am sorry, however, to say we are still greatly troubled with the water in this winze, but are expecting it to be drained shortly by the level below. I am very pleased to be able to inform you that the lode in the 46 driving east from the engine-shaft is looking much better, and is yielding more ore than it has before since it was first commenced. The lode should be cross-cut through to the full width at this point, but we cannot spare time to do it now, as our chief object is to reach the run of ore ground that proved so rich in the 10, and to drain the water from the winze referred to above with as little delay as possible, and this cross-cutting can be done at some future time with equal, if not greater, advantage. There is no change of importance in the 46 fm. level west, or in any other part of the mine.

FOREIGN MINES.

ST. JOHN DEL REY.—Telegram from Morro Velho, dated Rio de Janeiro, March 23: Profit for the month of February, 670l.

DON PEDRO.—Capt. Vivian, Feb. 24: Mine: The exploring cross-cut in the north ground, a little below Alice's West, is still in a good course of ore; also in the stopes opening out on the east side, or down hill from the said cross-cut. Other stopes are looking quite as well as when last reported on, yielding a fair quantity of ore of first-class quality of general work. The average of the samples for the last four days has been considerably higher than for several years past, which tends to prove the importance of carrying on explorations, through which means the present improved state of the company is achieved. There are still several points above the 35 worthy of trial, and which I have no doubt will further increase the value of the property when such parts are thoroughly explored.

— Letter from Mine Captains, dated Feb. 24: General Remarks: The ore has been derived from No. 8 new shoot adit level, and ditto Alice's and from No. 8 shoot north ground. In Bawden's cross-cut the ore has been of fair quality. A little improvement is perceptible in the branches in the No. 1 stope, east of No. 8 new shoot adit level: they are more defined, and the ground softer for excavation. The lode in the No. 3 stope east retains its favourable appearances, and affords a supply of good quality auriferous matter. The ground in the south side openings of the western stopes is somewhat easier for excavating, and the branches are still of fair size and quality. The stopes opening out in Alice's West are laying open some very fair quality and apparently extensive stoping, ore ground; the branches are well defined, and of good quality.—No. 8 Shoot North Ground, Bawden's Cross-Cut, Section 48: Two stopes opened out east from the cross-cut are producing some very fair quality mineral; the lode is apparently very extensive, and of good quality. Bawden's cross-cut is in 5 fms. 2 ft. from the inside or No. 2 stope to breast end, and the end is still in good ore ground; this cross-cut from the point where the lode was first cut to present end is about 8 fms. 3 ft., and so far we have only opened two stopes east, but the lode extends west of this level as well, which will be opened out soon for stoping also. In the stopes in this ground further east little has been done, and no change to note.

Permanent Pumping Machinery: Very little has been done to the erection of the permanent works since last reported on for the following reasons:—First, the force was employed in securing and partly renewing launders across gulley, &c., and since then about making new belt drum axles for saw-mill, in place of the former ones, which broke on the 19th inst. as the launders were finished, since which the mechanics have been busily employed thereon day and night, consequently nothing scarcely has been done towards the permanent pumping works.—Reduction: 75 ft. of launders have been renewed, stands spurred and strengthened, and two new ones put in, and runners, &c., repaired where most required.—Saw Mill: Belt drum axle broke on the 19th, and a new one was made, gudgeoned and bound, completed, and fixed, and mill put to work on the 23rd. To do this in so short a time the mechanics were obliged to work 36 and 48 hours without any rest or even going home, and are for the moment worn out. Without something new occurs, the mechanics will go on with the permanent pumping works. The breakages not only militate against the erection of the permanent pumping machinery, but also raise the cost very materially.

— Telegram from Rio, dated March 23: Produce cleaned up, first division of March, 2200 oits.

ALMADA AND TIRITO CONSOLIDATED.—Telegram from Mr. Breach: No profit for February. The lode in the new east lode, Providencia, continues to make upwards, and in east cross cut 10 fm. level north. Ley of ores for export 100 ozs. per ton.

RICHMOND CONSOLIDATED.—Telegram from the mine at Eureka, Nevada: Week's run, $100,000, from 1100 tons of ore; week's produce of refinery, $45,000. Mine looking very well. Refinery shorthanded.

March 6.—During the past week operations both in the mine and smelting have been carried on without any interruption, and with marked improvement in the mine. The 200 drift is without change, and the stope above this level is without alteration since last reported. The ore development in the 400 cross-cut is opening out well; we have made an opening of 40×25 ft. in good ore, and drifted on the course 15 ft. further than the stope, with good ore in both the ends of the ore body. All the ore taken out is of good quality. The 400 main drift has very much improved since my last; the drift has been extended in ore 40 ft., the last 20 ft. high grade ore, and for the whole distance (40 ft.) the bottom of the drift is in good ore. By the bearing of this ore it is undoubtedly part of the same ore body as opened in the 400 cross-cut, distant 300 ft. We are preparing to sink from the end of the 400 cross cut to the 500 level. Nos. 4 and 5 chambers, above the 400, are turning out well, and improving daily. The stope below Lizette Tunnel is opening out very well. All the stopes and ore bodies have very much improved since last week. Drifting on quartzite in the 600 has been resumed; the present end is on a close contract, without ore. The sinking of the 700 winze has been suspended for the time being, on account of water. The 800 drift is in hard ground; this level will soon be under the winze sunk from the 700, when it will unwater it, and at that point we expect to strike ore, as the ground at the bottom of the winze is orey, and shows indications of improvement. The 600 drift, on the contact of quartzite and limestone, is without any change. A contract has been let to sink the winze below the 900; since last week the water has increased, which makes it it inconvenient for sinking. If it should increase any more we will suspend the sinking and begin a drift at a level with the 1000 ft. level. The furnaces are working well, and making large quantities of ore.

BIRDSEYE CREEK.—G. S. Powers, March 3: I last wrote you Feb. 13, and am since in receipt of your letter of Jan. 24, and note contents. The break on the ditch proved to be much more formidable than I at first thought, having examined it by the aid of a lantern light in the evening. We did not get any available water until the 22nd, making eight days in all. The Nevada Company have promised to make up the loss to the Birdseye Company in water during the summer months, or whenever we can use it to our advantage. I was on the works with a force of men from the claims until finished, and have not since had time to make up January accounts, but hope to be able to forward them in a few days now. We made a partial clean-up in Neece and West, and Red Dog, Feb. 22, and as they were extremely light I did not deem it advisable to cable the result. The amount was 242 ozs.; approximate value, $4500, which I have applied on the unsettled accounts. The amount will not nearly pay off the indebtedness here, but will make matters easy for a time, and I feel in hope the next clean-up will be more satisfactory. We have been washing partially at Waloupa since Feb. 23, the result of which shows that our shaft was raised about 60 ft. outside the channel, and the rock is pitching about 4 ft. in 20 ft., and appears to be going down even more rapidly for the past day or two. I feel much encouraged, as the dip in the rock is a sure indication that there is a real channel ahead of us that has never been tried, and to-day I have seen more indications of gold than ever before since the washing commenced on this claim. We are extending the main tunnel ahead in order to run through the rim rock, and we shall then raise another shaft inside of the rim in order to work from the bottom, after which it is my aim to wash alternate here and in the Neece and West Claim, as the water can be utilised to the best advantage. The washing of Red Dog has been mostly from the surface. We exploded a small blast on this mine Feb. 11, of 25 kegs of powder, and we shall have another ready in a few days. As the ground on the west rim is extremely poor, I shall work a narrow cut through the waste ground, and then widen out and pay gravel, instead of working so much waste ground at so much cost. It will take a considerable time yet before we can hope to make a satisfactory showing. I am doing that which I consider will be the best for my company, and I hope that it will meet with the approval of the company. I have great confidence in Waloupa, and should it prove equal to my expectations it will be something that will last for years, as there is a very large quantity of ground.

MINERAL HILL.—Mr. Plummer, March 2: Queen Tunnel: The soft channel of ground already reported is still in existence at this point. During the past month we drove 37·8 ft., making the new extension 137·8 ft. to the end of February. This is a long distance to drive without developing ore of more or less extent.—Star Mine: The men (four) are busily engaged stoping south and west of the Star incline, and are breaking ore every day. Since we commenced at this point we have broken about 10 tons of $65 to $70 per ton in the rough, and most of this was broken last week. The chances are greatly in favour of our breaking a quantity. There was at first but little sign of mineral at this point, a very small seam of quartz being all that was visible. This, when opened out, looks pretty well.—Troy Mine: The winze in this mine is down 17 ft. from bottom of the Queen tunnel. We have broken into the vein since my last, and found fair quartz, mixed with spar and intrusive lime rock; it carries a well-defined wall; it is well situated for testing, and is really the most important point on the hill.—Western Stope: The men during the past month made rapid progress in driving the tunnel at this point; they drove 30 ft., making the length of this level, with its approach, 63 ft. Ore in small quantities has been discovered, but not enough to value. I have set the tunnel again to two men, at $7 per foot, limited 15 ft. Everything during the past month has been pushed on with vigour, and a great deal of work performed. Owing however, to the ground changing after the bargains were set, the costs for February will be somewhat in excess of other months.

MALABAR.—G. B. O'Reilly, Feb. 9: I have made some change in the position of distributors and monitors. The move will give us much better command of the ground and secure us from all risks of slides. The banks are over 150 ft. in height, and it is very necessary to be cautious in approaching them. The position we have decided on is, I consider, quite safe, and will give us, I hope, great facilities for washing in future. The character of the ground is certainly better than in portions of the mine further east; and, although the pipeclay remains about the same, we shall be free of surface boulders for the future, judging from appearances. The clean up will take place some next month, after getting in 500 hours. We have been, of course, much delayed by the change of rig, but in future I hope to complete our runs in shorter periods.

AL MILLOS.—March 20: The lode in the 40, west of San Felipe, continues to look well, worth 1 ton per fm. In the 20, west of San Felipe, the lode is small, and does not contain lead enough to value. The lode in the 25, west of Abercrombie's, has improved in value, now worth ½ ton per fathom. In the 40, west of Abercrombie's, the lode has a better appearance. The 40, east of San Enrique, continues to produce good stones of ore, worth ½ ton per fathom. The lode in the 100, east of Taylor's, is letting out water. The 100, west of Taylor's, continues to open valuable ground, yielding 2 tons per fathom. The men in the 85, west of San Adriano, are rising against Lozano's winze. The lode in the 60, east of San Victor, contains spots of ore. In the 70, east of San Victor, there is a strong and promising lode, producing 1 ton per fathom. The lode in the 70, west of San Victor, is of no value. In the 60, west of San Victor, the lode has a more favourable appearance. The lode in the 30, east of San Victor air shaft, is very regular, valued at 1 ton per fathom. The 30, west of San Victor air shaft, is opening good ore ground, worth 1 ton per fathom. The ground in the 40, south of San Carlos, is more favourable for driving. In the 30, east of San Jose, the men are driving north to intersect the lode below the slide. The lode in the 40, east of Judd's, has fallen off in value, but still worth ½ ton per fathom. In the 50, east of Judd's, the men are stripping down good branches of lead from the north side, valued at 1 ton per fathom. The lode in the 70, east of Judd's, is harder, and of less value, yielding ½ ton per fathom. In the 50, east of Judd's cross-cut, the lode became poor a few days ago. Lozano's winze, below the 60, will soon be holed to the 85. The lode in Fermin's winze, below the 50, has again become productive and at present yielding ¾ ton per fathom.

LINARES.—March 20: The 135 cross cut, south of St. Tomas, is in hard granite. The lode in the 120, east of St. Tomas, is open and easy, and yields good stones of ore. At the 115, south of Warne's, we have intersected the lode, and commenced driving east and west on its course, but it is poor at present. In the 100, east of Warne's, there is a large lode, consisting of carbonate of lime and lead ore; worth 1 ton per fathom. The lode in the 120, west of Peill's, is compact and regular, and has a promising appearance, yielding 1 ton per fathom. The lode in the 105, west of Peill's, has fallen off a little, but is now worth ½ ton per fathom. In the 90, west of Peill's, the lode is small, consisting of quartz and lead ore, valued at ½ ton per fathom. The lode in the 120, east of Peill's, is regular and well defined, producing 1 ton per fathom. In the 105, east of San Francisco, the lode contains a little ore, but not enough to value. The 90, east of San Francisco, is opening up good stoping ground; worth 1 ton per fathom.

Quinientos Mine: The lode in the 100, west of Taylor's, is small and unproductive. In the 90, west of Taylor's, there is a large lode, with good stones of ore. The lode in the 80, west of Taylor's, has very much improved during the past week, and now worth 1 ton per fathom. In the 100, east of Taylor's, the lode is disordered and poor. In the 90, east of Taylor's, there is no improvement. The lode in the 80, east of Addis's, continues unproductive. In the 80, west of San Carlos, there is a large lode, consisting chiefly of carbonate of lime, with a few stones of lead ore. The lode in the 80, east of San Carlos, is improving in appearance, and yielding good lumps of lead. In the 65, east of Judd's, the lode is small and unproductive. The lode in Laborde's winze below the 65 is disarranged and unproductive. In Cano's winze, below the 90, the lode has fallen off a little during the past month, but at present worth 1 ton per fathom.

LANESTOSA.—March 23: To expedite the investigation of the ground below the bottom of La Cruz shaft, now being sunk under the 50 metre level, a plat is being taken out and the sinking continued, pending the cutting down of the shaft above from adit. The lode in the bottom is 3 ft. wide, of rich calamine, producing 3 tons per fathom. Ventilation winze, below the adit, is expected to be holed by the end of the month. The lode going down is composed of shale and flookan, without ore. The 50 metre level south shows a promising lode of fluor-spar, spotted with lead ore. The adit end north has a lode 2 ft. wide, chiefly calamine rock, with clay, yielding nothing to save.

FORTUNA.—March 20: Canada Incosa: In the 120, west of O'Shea's, the lode yields good stones of ore, but not enough to attach a value to. The 110 west of Judd's, is driven beyond any ore ground seen in the upper levels. The 30, east of San Carlos, is being driven in decomposed granite; lode composed of quartz and spots of lead ore. The lode in the 50, west of Abercrombie's, is very regular, but consists entirely of hard quartz. The 60 fathom level, west of Abercrombie's, will be very shortly getting under a good lode seen in the level above. The lode in the 50, east of Abercrombie's, is open, and contain spots of lead ore. In the 70, west of San Pedro, the lode is split, and having a large proportion of granite mixed with it is poor. The 80, west of San Pedro, is passing through a bar of stiff ground. The lode is small, but yields ¾ ton per fathom. The lode in the 80, east of San Pedro, is presenting a better appearance, and is now a kindly lode, worth ¾ ton per fathom. In the 70, west of San Pedro, a good length of fair average ground is being opened, producing 1 ton per fathom. At the 120, east of O'Shea's, there still remains a short distance to be driven before reaching the good lode seen in the 110. The lode in the 100, west of Lowndes', is soft and speedy for driving, but poor. In the 100 fm. level, east of Lowndes', the lode is opening wider, and we hope soon to be able to report better ore ground; present worth ½ ton per fathom. In the 90, east of Caro's, the lode has been disordered by cross joints, but is now getting more compact. Paco's winze below the 40 is being sunk through a splendid lode, valued at 2 tons per fathom. The lode in Campbell's winze below the 90 is still producing stones of ore. In Duke's winze, below the 60, the lode has slightly fallen off, but still worth 1 ton per fathom.

Los Salidos: The lode in the 130, west of Buenos Amigos shaft, is very small and poor, and the ground is hard. In the 130, east of Morris's, the lode is large and open, and is letting out water freely. In the 120, east of Cox's, a great length of valuable ground is being laid open, worth 2 tons per fathom. The lode in the 110, east of San Miguel, is regular and compact, and yields fine lumps of lead ore, valued at 1 ton per fathom. In the 25, west of Swaffield's, the lode is split into valueless branches. The lode in the 55, west of Swaffield's, is small and poor, and the ground is greatly disordered. In the 65, west of Palgrave's, the lode is large, and produces fine rocks of ore, worth 2 tons per fathom. The lode in the 65, east of Palgrave's, is compact and regular, yielding ¾ ton per fathom. In the 35, east of Palgrave's, the lode is composed of quartz and lead ore. Morris's engine-shaft below the 130 has reached the requisite depth for the 140, and driving east and west has been commenced. Palgrave's engine-shaft below the 65 is deep enough for a 75 fathom level: a cross cut will at once be put out in search of the lode.

VIRNEBERG (Copper).—R. K. Roskilley, March 27: Hadley's Engine Shaft: The lode in the 140 metre level, driving south of shaft, is within the last few days much improved in appearance and character; a fine-looking lode, and producing good stones of copper ore. The lode in the rise in back of this level is worth 10l. per fathom. In the 120 metre level, driving south of shaft, the lode is a little disordered by a patch of killas; this we think to be only temporary, and judging from its present appearance believe it will shortly improve. The lode in the rise in the back of this level is worth 20l. per fathom; a fine looking lode. The lode in the stope in back of the 120, as well as in the stopes in back of the 90 metre level north of shaft, is without much change to notice. We are busily engaged in erecting another jigging-machine to work with Collom's patent jiggers; when this is fixed we shall be able to increase our returns. We have dressed about 40 tons of copper ore.

LUSITANIAN.—March 20: Palhal Mine: Levels on Basto's Lode: The lode in the 200, east of Taylor's, is 4½ ft. wide, composed of quartz, and small stones of ore. In the 200, west of Taylor's, the lode is from 2 to 3 ft. wide, composed of quartz, and stones of ore. The lode in the 190, east of Taylor's, is 4 ft. wide, composed of quartz. The lode in the 180, east of Taylor's, is 4 ft. wide, composed of quartz, and some copper ore mixed with it, but not enough to value.—Stopes on Basto's Lode: Below the 200, east of Taylor's, the lode is worth 1 ton per fathom. Above the 200, east of Taylor's, the lode is worth 1¼ ton per fathom. Below the 190, west of winze, the lode is worth 3 tons per fathom. Below the 190, west of winze, the lode is worth 2 tons per fathom. Above the 200, east of Taylor's, the lode is worth 1 ton per fathom.—Carvalhal Mine: The lode in the north deep adit level, west of the slide, on the north lode, is still in small strings, some of which contain small spots of lead and mundic. The lode in the top adit level on the Valley lode, is small, composed of flookan and country.

OF INTEREST TO COPPER MINERS AND NATIVE SULPHUR PRODUCERS.—The attention of our mining readers is called to the card of Mr. Henry Sewell, M.E., in our advertising columns to-day. Mr. Sewell, who is well known on this coast, in Europe, and South America, makes a speciality of copper mining and the smelting of argentiferous copper ores to matte of 70 per cent.; at the same time this operation increases the percentage of silver five times; this process he carries out in reverberatory furnaces with wood fuel. He has had ten years' practical experience in Chile; also, he is master of the mining and reduction of native sulphur ores without fuel or iron pans, according to the Sicilian method, for which Mr. Sewell had a patent in Spain, where he carried out this process most successfully in several provinces.—*San Francisco Evening Post*, March 2.

*** NOW READY, THE MINING JOURNAL, VOLUME XLVII., FOR 1877. Neatly bound and lettered, price £1 12s. 6d. To be had from our office, 26, Fleet-street, London, or through any newsagent or bookseller.

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The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, MARCH 29, 1878.

IRON.	£ s. d.	£ s. d.
Pig, GMB, f.o.b., Clyde..	2 11 1½-	—
,, Scotch, all No. 1 ...	2 12 6-	3 10 0
Bars, Welsh, f.o.b. Wales	5 5 0-	5 10 0
,, ,, in London.	5 15 0-	6 0 0
,, Stafford., ,,	7 0 0-	8 0 0
,, in Tyne or Tees ...	5 10 0-	5 15 0
,, Swedish, London ..	9 15 0-10	0 0
Rails, Welsh, at works..	5 0 0-	5 2 6
Sheets, Staff., in London	8 10 0-	—
Plates, ship., in London	7 0 0-	7 5 0
Hoops, Staff.	7 15 0-	8 0 0
Nail rods, Staff. in Lon.	6 10 0-	7 0 0
STEEL.		
English, spring 13	10 0-19	0 0
,, cast 30	0 0-40	0 0
Swedish, keg.....15	10 0-	—
,, fag. ham. 16	0 0-	—
LEAD.		
English, pig, common...17	7 6-17	10 0
,, ,, L.B.....17	10 0-17	12 6
,, ,, W.B. 18	10 0-	—
,, sheet and bar..19	0 0-	—
,, pipe.....19	10 0-	—
,, red 20	0 0-20	10 0
,, white 27	0 0-28	0 0
,, patent shot ...23	0 0-	—
Spanish.....17	0 0-	—
NICKEL.		
Metal, per cwt. 18	0 0-20	0 0
Ore, 10 per cent. per ton.24	0 0-26	0 0
QUICKSILVER.		
Flasks of 75 lbs., ware. 7	2 6-	—
SPELTER.		
Silesian..... 18	5 0-	18 10 0
English, Swansea 21	0 0-	—
Sheet zinc 22	0 0-	23 10 0

TIN.	£ s. d.	£ s. d.
English, ingot, f.o.b...	67 0 0-	67 10 0
,, bars ,, ...	68 0 0-	68 10 0
,, refined.....	69 0 0-	—
Australian	63 10 0-	—
Banca	66 0 0-	67 15 0
Straits	63 10 0-	64 0 0
COPPER.		
Tough cake and ingot.	69 0 0-	—
Best selected	71 0 0-	—
Sheets and sheathing.	73 10 0-	—
Flat Bottoms	73 0 0-	—
Wallaroo	74 0 0-	74 10 0
Burra, or P.C.C.	73 0 0-	73 10 0
Other brands	69 0 0-	70 0 0
Chili bars, g.o.b..nom.	63 0 0-	63 10 0
PHOSPHOR BRONZE.		
Bearing metal	£112 0 0	
Other alloys	£120 0 0-	140 0 0
BRASS.		
Wire	8¼d.-	—
Tubes.....	10¾	- —
Sheets	9⅜	- —
Yel. met. sheath. & sheets.	6¼	- 6¼d.
Nails composition.....	8¾	- 9

TIN-PLATES.*	per box.
Charcoal, 1st quality ...	1 0 0- 1 1 0
,, 2nd quality ...	0 19 6- 1 0 0
Coke, 1st quality	0 18 0- —
,, 2nd quality	0 17 0- —
Black .....per ton	16 0 0- 16 10 0
Canada, Staff. or Gla., at Liverpool	11 10 0- 12 0 0
Black Taggers, 450 of 14 × 10	30 0 0- —

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; IX 6s. per box more than IC quoted above, and add 6s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.

REMARKS.—During the last quarter of a century our markets were probably never so little influenced by the action of middle men as at present. Some time ago they discovered there was little room left for them, and that it was perfectly useless to strive against the current of events, and so they very wisely concluded that it was better to withdraw until a more propititous season should offer for their return; thus they have remained quietly abiding their time, and continue to assume an observant attitude, seeing clearly there is no good to be done yet awhile. The withdrawal of the middle men, however, was not altogether voluntary on their part, as it was partly owing to the serious losses they sustained, which considerably crippled their resources, and necessarily compelled them to limit their operations; indeed, their only safety depended upon the exercise of extreme caution during so great, so trying, and perilous a period of political disturbance. Nevertheless, the changes that have taken place have arisen more from the excessive competition prevailing, and the dissemination of economic principles, than from anything else, and this has led to the belief that the middle men could be entirely wiped out; but the attempt to dispense with them has not been attended as yet with any advantage, and we are inclined to question the wisdom of the effort to annihilate them. We are aware that the idea of dealing with principals only has gained the approval of a large section of the community, but we believe it is altogether erroneous, for in the end it will be found that direct dealings result in more loss than profit. There must always be a difficulty between two principals doing business together, for neither like to communicate openly to the other what is the best that can be done, and if either side should be so candid as to impart the required information, it would be expecting rather too much if no advantage was taken of it. For the seller to charge less, or for the buyer to be so considerate as to pay more than absolutely necessary, is so foreign to the present age that such an occurrence would be apt to raise suspicions or excite laughter; or in the case of a difference arising in the matter of price where both sides have displayed firmness, and held out and objected to submit to the terms demanded, that is an awkward stage in negociating, and might not only jeopardise but entirely prevent a transaction being completed.

Then, again, if any question or hitch occurs about a contract over which strong terms are used, neither side cares to retract, and the carrying on of business is thereby endangered; but we might go on multiplying numerous other instances to show that direct business is not likely to promote the interest of either buyers or sellers, and it is taking a very superficial view of things to imagine that because the commission of the intermediary is intercepted and unwarrantably acquired that it is actually so much gain. If merchants desire to act upright they will cease to deprive the middle men of their legitimate commissions, or pass them over by going direct to principals. The prices of metals are not so high now that a small commission can be of any material consequence, and we are confident if there is mutual trust between the buyer and his agent the merchant will not have cause to regret his having employed the middleman, and his presence once again we shall hail with the greatest satisfaction, for his absence gives a most inanimate appearance to the market. Our markets have been very dull all the week, and prices continue to give way, and, judging from present appearances, it is impossible to say when any improvement will take place: one thing, however, is pretty evident, that it cannot be just yet, and under these circumstances it is surprising that holders do not make a greater effort to free themselves from responsibilities and reduce their risks. They must admit that the immediate future is full of evil forebodings, and that it will take a considerable time before business will recover its former dimensions; in the meantime there is every probability of greater depreciation.

It is such a pity to check what little business might be done, or to send orders back unexecuted, just for the sake of a trifling difference. The markets have not undergone any sudden alteration to lead anyone to look for a sharp reaction, but quite the contrary. With the exception of very slight fluctuations they have persistently followed a downward course, and, therefore, it is unreasonable to expect that they will rally quickly, or that any excessive demand is likely to spring up, but even if it did stocks are ample to meet requirements, and prevent any scarcity taking place. The movement in the Bank rate must be narrowly watched, for any extreme rate might cause a good deal of pressure in financial circles, and necessitate the realisation of large holdings. So long as money is a drug upon the market financiers do not object to make advances, but when it can be well employed at a high rate they are often indisposed to renew loans upon produce; a dear money market would complete the discomfiture of our markets. Political affairs are still unfavourable for any immediate settlement, and it is evident matters are now taking a very serious turn. The resignation of Lord Derby clears the course, and the calling out of the reserves dispels all doubts about the intentions of England. There will be no Conference to discuss the San Stefano treaty, and before long we may fully expect a declaration of war against Russia. We have repeatedly given warning of approaching danger, and there has been ample time afforded for holders to profit by it; if they have not done so they have only themselves to blame, for we have not only warned but urged and begged them to realise while the opportunity remained. The sanguine expectations that were formed towards the close of last year in regard to trade have not been realised, and we should think that since the commencement of this year there has been a dimunition in business rather than any increase, and the decline in prices corroborates this view.

COPPER.—The market has not undergone any material change since our last issue, the tendency of prices being still downwards; the progress is, however, slow in proportion to what might be expected, considering the little disposition which is manifested by buyers to do anything beyond actual requirements. It would now be most difficult to place any quantity without a considerable concession in price, but although the reduction would necessarily be large, yet that may be comparatively small to what may hereafter have to be submitted to, and, therefore, delay is dangerous. Those who lately acted upon our advice, and sold without reserve, have every reason to congratulate themselves upon what they did, and it would have been better if others had followed their example and done likewise. The best business men are those who cut their loss quickly when they see a market has taken a different turn to what they anticidated, as there has been more loss incurred by a hesitating policy than in any other way, and we cannot understand people holding on to a bad investment merely in the hope that something may turn up of a favourable character. This is about as weak a foundation as any that could be advanced, and yet we would ask what other grounds are there for believing in the realisation of higher prices? The production does not decrease on account of the reduced value, and there is evidently no urgent demand on the part of consumers to avail themselves of existing rates; those who have running contracts are, of course, compelled to take delivery, but there is no fresh business doing either for home consumption or export.

The manufactured brand is in a most deplorable condition, and is going from bad to worse, for the smelters are prevented from accepting buyers' limits on account of the price at which the raw material is held, and the time for many orders is fast expiring, and there is every probability that they will not be renewed even on such good terms as at present offered. The price accepted for tough by the Tharsis Company influences buyers to postpone the execution of orders unless they can buy as cheaply—67*l.* 10s.—and the smelters cannot well afford to do this at the moment. Everything in our market points to a lower value, and Rogers' price for Chili will not unlikely be the ruling one before very long. We look for no improvement in statistics, and with large stocks, dearer money, and limited trade, sellers will have to modify their ideas or remain hampered up, daily incurring additional expenses in a declining and dangerous market. The increasing gloom of political prospects is another reason for anticipating a decline on a more extended scale. The failure of the Congress will probably be followed by graver incidents, and it now seems a mere question of time when hostilities will break out, and as a war with Russia it is generally thought will be a prolonged affair, every precaution should be taken on the part of weak holders of stock to get relieved with as little delay as possible. It is no use holding out for 10s. or 20s. per ton at such a time. The aim of every prudent man will be to turn everything into money, and husband resources during these continental embroilments. Nothing must be left to chance or in any artificial state, but while there is a possibility of a reduction in prices the market is no longer a safe one, and ought to be abandoned for speculative purposes by all who are not equal to a severe emergency. Our advice to holders for a long time past has been to realise. Our advice to them still is to realise, and to do so quickly.

IRON.—A very small amount of business has been transacted this week, and sellers experience great difficulty in obtaining orders to keep the works in motion. The advices from abroad, especially those from India, are so unfavourable both in regard to supplies, which have overstocked the market for a time, and the reduced prices realised, that it wholly discourages further shipments except on order, and forbids the expectation of any better demand immediately arising. The course of our market is undoubtedly downwards, but as yet no particular change has been declared in quotations, nevertheless sellers, to secure orders, will ere long have to make concessions, and they well know the urgent necessity which exists for doing so, and we are glad to see, although it comes somewhat tardily, that they are not unprepared to meet buyers in their limits to a small extent whenever practicable. This is a good and promising feature, and one that augurs well for the future prosperity of the iron trade, for there is a much better chance of business resulting and eventually improving now that sellers are overcoming their inflexible mood, and beginning to display a more pliant disposition than previously, and we hope that these very desirable concessions will not be long unrewarded. It has been evident for a long time past that the only way to resuscitate the demand was by reducing prices to a minimum, in order to stimulate the consumption, and to compete more closely with foreign houses, particularly the low-class iron for which Belgium so keenly competes. The superior class of English iron is less liable to be interfered with, and the Staffordshire ironmasters of the leading makes will probably receive a full share of the demand as soon as ever it revives. But it is the makers of unbranded iron and the Welsh and East Coast makers who are deprived of most of their trade by the importations from Belgium, and it is of the utmost consequence to them that every effort should be made to recover the trade.

The price of coal is so intimately connected with that of iron that the least movement in that trade is narrowly watched, and it is with satisfation that we notice a numerously attended meeting of miners took place a few days ago at Bedworth, at which the deputatiou who were appointed to meet the owners reported that while the employers had asked for a reduction of about 12½ per cent. they had, a long discussion, been induced to accept 8½ per cent. It was pointed out that the settlement was the best that could possibly be had under the circumstances, and a resolution was unanimously carried to the effect that it should be assented to. There has also been an adjourned meeting of South Yorkshire and North Derbyshire at Sheffield, to consider to consider the reduction of colliers' wages. The masters demanded 7½ per cent., and the men offered to consent to 5 per cent, The masters at length resolved to accept the offer made on behalf of the men, although in the resolution it was distinctly stipulated that it was not to be considered as final. Here, then, at last are indications of men uniting in studying the interests of the trade in which they are so intimately concerned, and in endeavouring to remedy the evils which the dilatoriness of their former proceedings has occasioned; and if they will only continue to act promptly and prudently there is hope that the trade mey gradually be recovered, but lower prices generally will have to be quoted before any large amount of trade will be obtained; therefore the men must understand that lower wages yet will have to be taken to enable their masters to accept orders at a further decline. We want to see the output increased and wages made up by additional labour; and if everyone will put their shoulder to the wheel we may yet see English iron selling once again below that of Belgium, and not until then shall we be in our right position.

On the whole, there has been very little variation found in this trade during the past week. If anything, prices from one or two districts are quoted rather lower, common sheets being now obtainable at 8*l.* 5s., London; but the demand has not improved, nor has business become more animated, but rather the reverse—if possible, more slack. Many works are altogether out of employment, while others, though doing their utmost to keep going with the few and small dimensioned orders they receive, will it is pretty evident have to close ere long unless the trade makes a turn for the better, and contracts become more numerous. This can only be accomplished by a considerable reduction being made in prices, or speaking more definately equal, if not below, that of any other country; therefore, let masters and men work simultaneously together, not as appears to be too often the case at present—the one holding out against the other, as it were in a race, to see which of the two can keep up the distress the longer; that is not the way to improve matters. In some instances masters are willing to make some concessions upon common bars, but merchants are very reluctant to give more than 5*l.* 10s. per ton, London. There appears to be very little variation at Leeds, the markets remaining tolerably steady, without any material alterations in prices. A fair number of tyres have been turned out from the chief forges, but other kinds of iron are very dull, and the works hardly employed. Masters have somewhat given way in their quotations at South Durham, the great depression which has been so prominent during the past few weeks having made them give way. It is reported, however, that there are very few buyers on the markets, which consequently makes sellers more indifferent in the readjustment of their prices than they otherwise would be. The prices which rule the markets are—for No. 1, 44s.; No. 3, 40s. to 40s. 6d.; No. 4 forge, 39s. to 39s. 6d. Plates are fairly active at 6*l.* 7s. 6d. per ton, while bars are procurable at 5*l.* 10s. to 5*l.* 12s. 6d. per ton.

We are sorry to see that it is reported from Rotherham that the trade in that district has made a slight change for the worse. The works are in a most idle condition. The Northfield Ironworks, which have only recently been reopened, are standing pretty well idle for the want of orders. The Midland Ironworks appear to be in the same state. The Parkgate Works, through perhaps in a less unfavourable position than the others, are anything but well employed. One portion of these works, however, is reported to have been standing still for the last 18 months. There appears to be an extremely limited demand in this part of the country for any kind of iron, but the whole trade seems to be in a most sluggish condition in all branches. The trade has somewhat improved at Sheffield, and it is reported that the number of hands engaged are more numerous than they were a month or two back, although this is more encouraging than the reports we have been able to give lately, still we regret that we cannot state any real activity in the district. The works are in employment only on short time, and many of the employed are only too glad to obtain work for three or even two days per week. The reduction in wages in the file trade was agreed to almost without a murmur, so great is the distress experienced by the men. Undisturbed quietness is said to reign over the market at Barrow-in-Furness, and all kinds of iron is reported exceedingly dull, except perhaps Bessemer, which appears to be in fair request, chiefly by steel consumers. Stocks are still high, showing but little change. Quotations for No. 1 Bessemer being 64s. per ton, and for No. 3, 61s. per ton. Iron ore continues dull at 11s. 6d. to 13s. per ton at the pits. The market generally has been very quiet at Newcastle, though the exportation of pig-iron has somewhat increased. Prices however, have remained unchanged.

Very little improvement is reported from Birmingham, though it is said more animation has been observable on the markets. The commoner descriptions of sheets are procurable at the low figure of 7*l.* 15s. to 8*l.* per ton, but the demand is very slack. However, the request for better kinds is fair, at prices as last quoted. It is stated that a few good orders have been placed for boiler-plates, but branded bars are very slack at 8*l.* 10s. per ton. There has been some improvement in pigs at 4*l.* to 5*l.* for hot-blast and 5*l.* per ton for cold-blast. Stocks, however, are still said to be high; but sellers refuse to sell below the market rates. Cinder pigs are procurable at 2*l.* 5s. per ton. The mail from New York of the 13th inst. complains of the dull state of trade in that country, the quotations for American pig being for No. 1 X, $18 to $19; No. 2 X, $17 to $18; and forge, $16 to $17. Scotch is dull, at $25 for Coltness, $24 50c. for Glengarnock, and $24 for Eglinton. In the absence of business for scrap iron prices remain unchanged at $22 to $23 for No. 1 wrought from yard. Rails are fairly active at $33 to $36, and old $19 to $19 50c. Prices remain unaltered for manufactured iron, and the demand is very small. The transactions in Scotch pig-iron at Glasgow have been on a very limited scale, and business has been chiefly done at 51s. to 51s. 1½d. for prompt cash. Our markets now closing at 51s. 1½d. cash.

SHIPMENTS.

For the week ending March 23, 1877	Tons	9,312
For the week ending March 22, 1878		7,728
Decrease		1,584
Total decrease for 1878		5,305
Imports of Middlesborough pig-iron into Grangemouth:—		
For the week ending March 22, 1878.....	Tons	6,669
For the week ending March 23, 1877.....		4,559
Increase		2,101
Total decrease for 1878		770

FURNACES.

In blast March 24, 1877	115
In blast March 23, 1878	87

TIN.—The price is about 10s. lower than this day week. Sellers are not, however, unduly pressing sales, and the market for the most part has been steady, although quiet. The deliveries for the month will be known on Monday, but at the moment politics may, perhaps, exercise as much if not more influence than statistics. The ensuing month is not likely to be very encouraging for business, and buyers will doubtless act with extreme caution.

TIN-PLATES.—There is very little doing, and orders are scarce. Cokes are obtainable at 16s. in London, and 15s. 3d. in Liverpool. Charcoal are proportionately cheap.

LEAD.—The position of the market has not improved, and prices if anything have been slightly easier, but although exceedingly low, buyers are not eager to avail themselves of the advantage.

QUICKSILVER unaltered at 7*l.* 2s. 6d.

THE IRON TRADE.—(Griffiths's Weekly Report).—Friday evening. The Glasgow market has been firm to-day, and closes this afternoon with buyers of G.M.B. at 51s. 2d., exactly the same as the price last Friday. Several brands of makers' iron are quoted 6d. per ton lower. We quote No. 1:—Gartsherrie, 58s. 6d.; Coltness, 63s. 6d.; Calder, 58s. 6d.; Langloan, 60s. 6d.; Summerlee, 58s.; Monkland, 52s., f.o.b. Glasgow; Glengarnock, 57s. 6d; Eglinton, 52s. 6d., f.o.b. Ardrossan; Shotts, 60s., f.o.b. Leith; Kenniel, 54s. 6d., f.o.b. Bo'ness. The ironmasters' Quarter day will be held at Wolverhaupton on the 10th, and the Birmingham Quarter-day will be held in the Exchange of that town on the 11th prox. The ironmasters' Quarter-day of North Staffordshire will be held at Stoke-upon-Trent, previously to the Wolverhampton and Birmingham meetings. There will be no change declared in the price of iron at any of these Quarter-days. The iron trade in many departments remains quiet and inactive; nevertheless, as a whole, the prospects of the trade are more encouraging. Undoubetly considerably more orders have been given out for specialities, which involve the consumption of the very best iron, hence Lowmoor, Bowling, Kirkstall Forge, Phillip Williams and Sons, the Round Oak, W. Millington and Co., E. T. Wright and Sons, Bloomfield, John Bagnall and Sons, Robert Heath and Son, and Brown and Freers, have been engaged the last few weeks on specialities, which have kept certain departments of these great works in full operation. There is also a fair volume of trade being done in sheet-iron for galvanising purposes, and if we consider the increasing demand for galvanised sheet-iron, and that we are getting into the spring, we believe this part of the trade will improve, and considerable orders will be given out at Quarter-day for this class of iron. We have nothing to report this week in rails, either steel or iron, on this market, but have witnessed two foreign contracts for steel rails passing into the hands of Belgian and French ironmasters. The price of marked Staffordshire bars is firm at 8*l.* 10s., and forge pig-iron is firmer in all districts. The Middleborough market has assumed a normal position, and prices are sustained, minus 6d., which in face of the large production speaks well for the district. Hematite pigs on the West Coast are firm. Best Staffordshire forge are also very firm, with an extended business, and in Shropshire the price of Lilleshall and Madeley Wood is firm, and a large business is expected to be done in these brands at the Brmingham Quarter-day.

The Scotch market has been firm all the week, with very little change to register in price. The Indian Government requires 1500 tons of galvanised strand wire, which will give increased activity to this department. With regard to tin-plates, the quarterly meeting is abandoned, and we are sorry to say that the state os this trade is in a deplorable condition. I.C. Coke are being sold lower than they were last quarter-pay—indeed, much belowest figure we can remember. The makers of this class of coke plates must be suffering severely. There is more doing in the highest qualities of charcoal, in which the makers can just manage to make both ends meet. Mr. William Blakemore, of Wolverhampton, is appointed general manager of the Llynvi, Tondu, and Ogmore Ironworks in Wales. Mr Blakemore's practical knowledge of mines and collieries no doubt influenced the directors in this important point.

Messrs. PIXLEY and ABELL—GOLD: The only arrival of gold has been 45,000*l.* from India, but as in this amount were 32,000 sovereigns, which were sent into the Bank, the balance was quite inadequate to supply the demand for export, consequently about 293,000*l.* has been taken from the Bank, and further amounts will follow. The Guadiaua takes 34,500*l.* to the Brazils.—SILVER: There has not been a single order for India, and, for the third consecutive week, the steamer has sailed without a consignment of bars for the East. Orders for Spain and America have, however, caused a good demand, and the price has improved. The quotation of last week was 54⅜d., and transactions have taken place at that rate, at 54⅝d. and 54⅝d. per oz. The market is for to-day quiet at this last price. The Adriatic has brought about 20,000*l.* from New York, and the receipts from Germany since our last have been about 205,000*l.*

The settlement of the fortnightly accounts in the MINING SHARE MARKET took place this week, and was heavy in comparison with many previous accounts; a considerable amount of business having been transacted, and largs investments made in one or two prominent lead and other mines during the last week or two. Among these have been D'Eresby Mountain, D'Eresby Consols, Tankerville, South Condurrow, West Chiverton, Rookhope, East Van, and a few others.

TIN MINES, with the exception of South Condurrow, are flat, and there is scarcely any business doing. Dolcoath are quoted 31 to 33; Carn Brea, 42½ to 45; Tincroft, 11½ to 12½; Cook's Kitchen, 2½ to 3; Penstruthal, 4s. to 5s. At the Wheal Owles meeting a call of 12*l.* 10s. per share—1000*l.*—was made. The accounts showed a loss of 433*l.* South Condurrow have further risen to 11, 11½. We understand the mine has improved in the 50 fm. level, and at the meeting about the same dividend will be declared as at the last, notwithstanding the fall in tin. West Frances, 3 to 3½; West Godolphin, 1¼ to 1½; Wheal Agar, 4 to 4½; Wheal Grenville, 3 to 3½; Wheal Peevor, 6 to 6½.

COPPER MINES show no change, and there is little or nothing doing in them. Bedford United are quoted 2s. to 5s.; Devon Great Consols, 2¾ to 3¼; Hingston Down, 7s. 6d. to 12s. 6d.; Parys Mountain, 8s. to 10s.; the 90 west of cross-cut at the 90 south is worth 1 ton of copper ore per fathom. West Tolgus, 76 to 77½.

LEAD MINES continue active, and a good deal of business has been transacted in some of them. D'Eresby Mountain has been in good demand since the meeting, and have advanced to 65, 75; full particulars will be found in another column, and, as will be seen, it was determined to keep the mine in 512 shares only. The great objection to the sub-division into 10,240 shares seeming to be that it might be made a mere market mine of. The accounts showed a balance of assets over liabilities to the end of February of 1332*l.* 15s. 8d. The report of the directors congratulated the shareholders upon possessing one of the most promising mines in Wales. On the Gorse lode, in No. 4 adit, six men have already broken 1500 tons of leadstuff; and so far as the No. 5 level has been cleared the indications, the agents state, already lead them to expect a course of ore there superior to anything yet seen in the mine. To get all the machinery ready for dressing the ores will take three or four months, after which good and profitable returns are expected. D'Eresby Consols have also been in demand at 10 to 12½; the shares have been sought after in consequence of the success of D'Eresby Mountain Mine, which adjoins it, and the feeling that one may rise with the other. Grogwinion, 3½ to 4; the sampling on the 31st will be 150 tons of lead ore. South Cwmystwith, 3 to 4; this mine has sampled 40 tons of lead ore, for sale on the 30th. West Wye Valley, 3¼ to 3¾; the sampling here, on Tuesday next, will be 60 tons of lead. Wye Valley, 1¾ to 2¼; the lode in the 40 east is looking much better, and yielding more ore than it has before since it was first commenced. Pandora, 15s. to 20s.; the 33 south, on new lode, is worth 30 cwts. of lead and 30 cwts. of blende per fathom. The ores broken for the month are 20 tons of lead and 30 tons of blende.

Clementina: at the special meeting the resolution to increase the capital of the company was confirmed. The lode in the 34, north of Watson's shaft, has very much improved, and worth 10 cwts. of lead per fathom. The agent adds that he is confident the mine will prove itself productive and lasting. Roman Gravels, 8¼ to 8¾. Tankerville, 3¼ to 4; the engine-shaft is nearly down to another level in a rock of most favourable character. They are sinking a winze below the 192, in a lode 6 ft. wide, worth 5 tons of lead ore per fathom, and said to be like the top of a good bunch of ore. The 100 tons of ore sold for the month realised 1155*l.*

Derwent, 30s. to 40s.; this mine continues to improve. The value of the different points in the aggregate is above 15 tons of lead ore per fathom. The past month's return is about 30 tons of pig-lead. South Darren, 35s. to 40s.; the mine looks well, and is making profits. Glenroy, 15s. to 17s. 6d.; the lode in the shaft is 6 ft. wide, with stones of blende and a little lead in the quartz part. Pateley Bridge, 3 to 4; the Rake vein in the 30 east is worth 40*l.* per fm. Van, 24 to 26. East Van declined to 4¼, 4⅜; in the 55 cross-cut, south from Tempest shaft, there is a little lead in the end, and the agent is expecting daily to reach the south or hanging wall. Great Laxey, 19½ to 20½; Leadhills, 3⅝ to 3¾; Ladywell, ⅞ to 1⅛; Llanrwst, 1⅜ to 2¼; North Laxey, 3s. to 5s.; Rookhope, 17s. to 19s.; Temple, 3¼ to 3½; West Assheton, ½ to ¾; West Chiverton, 13 to 14; West Tankerville, ⅝ to ¾.

FOREIGN MINES.—Blue Tent, 3 to 3¼; Hultafall, 5 to 5½; Chontales, 11s. to 13s.; Eberhardt and Aurora, 5⅞ to 6¼; Flagstaff, 12s. 6d. to 17s. 6d.; Frontino and Bolivia, 1¼ to 1⅜; New Zealand Kapanga, 10s. to 15s.; New Quebrada, 1⅛ to 1⅓; Pestarena, 6s. to 7s.; Port Phillip, 10s. to 12s. 6d.; Richmond, 9½ to 10.

The Market for Mine Shares on the Stock Exchange has been extremely inanimate, and quotations are entirely nominal. But in spite of the almost total absence of business, the regular declaration of dividends by many of the established companies working both British and foreign mines continue, so that although the present depression may not pass away so speedily as had been hoped, there is nothing to jeopardise the reputation of mining as an industry when honestly and honourably carried on for the benefit of the capitalists whose money is invested, and not solely for the benefit of promoters and vendors. The Van has declared a dividend of 7s. 6d. per share, which, although much lower than usual, cannot be considered unsatisfactory in the present state of the lead market. The Fortuna Company has declared a dividend of 5s. per share. The Linares Company has declared a dividend of 4s. per share. The Alamillos Company has declared a dividend of 1s. per share. The Van dividend is payable to-morrow, the other three on April 6. The Tharsis Copper and Sulphur Company will, at the meeting on April 18, declare a dividend out of the profits to end December, 1877, of 17½ per cent., carrying forward 7859*l.* 6s. This is 2½ per cent. less dividend than in 1876, but still a very satisfactory rate of interest.

Another instance that directors are not at all times infallible has been afforded in the case of the Tyllwyd Company, and if Her Majesty were as jealous of the commercial morality of those in her service as she was of the physical morality of Colonel Valentine Baker, it is possible that Ferris Pasha and Hamilton Bey might hereafter be heard of amongst the Turkish officials, though neither of them might entitle himself to the honourable title of Ghazi. It appears that in connection with the winding-up of the Tyllwyd, Mr. D. Forrest, one of the liquidators, made certain charges and claims against Capt. Hamilton on the ground of the acceptance by him of money and vendors' shares for the promotion by him of the company, he having agreed

to accept, and afterwards having filled, the office of director of the company. In replying to the charge certain counter charges were made by Capt. Hamilton against the company, and as expensive and complicated litigation appeared likely to result, the liquidators to avoid this litigation conditionally arranged terms (subsequently accepted by the shareholders) between themselves and Capt. Hamilton. On the one hand, there is to be an absolute withdrawal and release of all claims of every kind against Capt. Hamilton, and also against Colonel Ferris, to whom also vendors' shares were allotted, and the settlement of all disputes relating to the formation of the company or the rights of the liquidators or the shareholders collectively or individually against Capt. Hamilton or Colonel Ferris, or either of them. On the other hand, in consideration of this, Capt. Hamilton has consented that the mortgage for 1200*l.* over the property of the new company, and all existing rights thereunder, shall be absolutely extinguished, and he will further provide a sum of money amounting to 150*l.* (which has been agreed upon between them) for the extra costs of liquidation, and of the carrying out of the arrangement. The compromise was no doubt equally beneficial to the company, to Colonel Ferris, and to Capt. Hamilton, and the matter may be of general interest in suggesting to shareholders in other concerns a method of recovering their rights.

St. John del Rey, 300 to 310; the usual weekly telegram from Morro Velho, dated Rio de Janeiro, March 23, states the profit for February to have been 6700*l.* Don Pedro, ½ to ⅝; the produce cleaned up for the first division of March was 2200 oits. Almada and Tirito, ¼ to ½; there was no profit for February. The new east lode (Providencia) continues to make upwards, and in the east crosscut 10 fathoms level north. The ley of the ore for export is 100 ozs. per ton.

Richmond, 9⅛ to 10; the usual weekly telegram from the mine at Eureka states that the week's run was $100,000, from 1100 tons of ore. During the week the refinery, which is short handed, produced $45,000. The mine is looking very well. The Eureka Sentinel states that the rumour of fresh litigation having been commenced by the Richmond against the Eureka is unfounded, at least at present. The trouble and controversy arises from the operations of the Consolidated at a point in their mine known as the "the little tenth level." Rumour has it that the Richmond Company claim that the Eureka is encroaching on their line, but in an interview with Superintendent Donnelly last evening he assured us that the ore body at that point is distant at least 300 ft. from the end lines as determined by the mutual surveys fixed by both parties shortly after the termination of the lawsuits. The Eureka Company is abiding strictly by the decision rendered by the United States Courts. In no place have they extracted ore nearer to the boundaries than 80 ft. The ore bodies on the eighth level are almost in the centre of the mine, while the pitch of the ledge on and below the tenth level carries them away from their neighbour, the Richmond. Other portions of the Eureka Consolidated Mine are yielding more largely than ever, and the bonanza on the eleventh level is by far the most promising that has ever been developed on Ruby Hill. It is at the lowest point yet attained, and is going down strong, carrying a vast amount of ore of high grade. The whole affair seems to be a movement of the bear element against the Eureka Consolidated.

With regard to the Sutro Tunnel Mr. Henry Sewell writes that at the recent meeting of stockholders in San Francisco it was stated that the tunnel header during the year ending March 1, 1878, has advanced 2834 feet, which makes the entire distance of the tunnel 19,060 feet. The progress made during the past year is 971 feet less than that of the preceding year, which is due to the rocky and dangerous character of the ground that has been tunneled. The company report that they have put 150 acres of their land in a proper state for cultivation. The annual receipts amount to $318,235·81, the disbursements to $306,914·07, and the total cost of the work thus far has been about $3,000,000. In a few months more the tunnel will reach the incline of the Savage Mine, and 1,295,000 gallons of water now flow from it daily.

The Ruby Consolidated Mining Company—which some time since occupied such a conspicuous position—and Mr. Heyneman are no longer litigants. Proceedings have been stayed for 90 days pending the consummation of the contracts agreed to by the representatives. Mutual receipts are to pass between the parties, covering all past transactions, including ore extraction, &c. The property, embracing mines and furnaces, will be turned over to the English company within 60 days. This settlement is a matter of great importance to Eureka. The Atlas Dunderberg are considered as among the best of the mines in that district, and have lain idle for a year. It is probable that in the event the compromise is accepted that work will be commenced at once, giving employment to a large force of men, and adding its wealth to the district output. The Colorado United advices state that:—"Big Strike Union Tunnel: This indicates that the Terrible lode has been struck, and that it shows a good body of ore at the heading of the tunnel. Accounts for the month of February show—Sales of ore during the month, $19,999·91; mining costs, wages, salaries, merchants' bills, and supplies, $8681·53; cost of running two tunnels, $1320; wages and machinery on new dressing works, $520·91; insurance on mill, 12 months, $140—together $10,942·44: leaving a nett profit for the month of $9057·47.

The latest advices from the Californian Gold Mines is to the effect that this season as yet has not produced any considerable quantities of dust; but the general opinion appears to be entertained that before the beginning of May times will be better than for any period during the past four years. At a recent clean-up of the Constitutional Gravel Mining Company at Dutch Flat, after a run of 26 days, 80 lbs. of amalgam, worth $70 per lb., was realised. This is the first clean-up of the season for that section, and the miners are highly elated over this unusually large yield, for it may be considered a sample of what many other neighbouring mines can expect.

Hultafall, 5 to 5½; the captain dresser (March 23) writes that they that morning got a start, and had been running a day satisfactorily. The buddles work well. They have dressed a little lead, but will be a couple of days before getting into steady work. This is regarded as satisfactory, the whole of this machinery having been erected and started in the winter. There is said to be no difficulty in the treatment of the ores. The mines are producing ore, and the various points of operation continue as last reported.

In Lead Mine Shares but very little business has been done, and in most cases lower prices have had to be accepted, a circumstance which can scarcely excite surprise, seeing that the position and prospects of the lead trade are decidedly gloomy, so that those accustomed to market operations well know that except in the case of mines actually and regularly paying dividends it is quite safe to sell the shares, even at the lowest market, upon the almost certainty of being able subsequently to repurchase at considerably less than the price realised. It is by acting upon this principle that dealers realise profits, whilst the public almost invariably incur loss. Mines which might possibly have given hopes of profits a year ago may with the present prospects of the lead market be looked upon as temporarily hopeless, so that those only who are prepared to forego capital and interest for twelve months or so should hesitate in realising upon the most favourable terms obtainable. The English market is in a very bad condition, the shipments to China and Japan alone being between 20 and 25 per cent. below those of last year to the same date. Moreover, the position of the lead market in the United States is calculated adversely to affect the metal in this country. In America there is still a large stock of lead held in numerous hands, and although undoubtedly there must come a better demand for the article than prevails now yet there is nothing to indicate that the production will be less than the consumption; in fact, the indications are that the production this year, like that of 1877, will be greatly in excess of the requirements.

It appears, however, that the Americans are trying to avert the calamity by a "pig-lead ring," for the Engineering and Mining Journal of New York states that a number of estimable gentlemen who reside at or near St. Louis seem to imagine, as we have several times had occasion to report in these columns, that by a stroke of the pen they can regulate the price of lead for the whole of the United States. They have held meetings, and agreed among themselves that the present price of lead is outrageous, and that there is no valid reason why—if they would all say so together—they should not make consumers and dealers everywhere actually believe that lead is not so abundant as they thought it was, and persuade them to pay more for it. A circular was issued by these gentlemen on March 9, in which they state that they have formed themselves into an American Pig-Lead Association, and they ask all dealers or producers of lead to join the same, and pay for this privilege $25 each. The members who sign the Articles of Association bind themselves—under the penalty of being turned out of the American Pig-Lead Association—to sell no lead at a less price than that fixed by the executive committee of the said association.

The price of first-class corroding lead is to be 4 cents per lb. (18*l.* 2s. 6d. per English ton); other than first-class 15 cents per 100 lbs. (13s. 4d. per English ton) lower. There is reason to believe that some of the largest Missouri works can produce lead at 1¾ cents per lb. (less than 8*l.* per English ton), and are expecting to make further economy. This, of course, does not leave profit to the works, but it is sufficient to show that even when the export figure (from 3¼ to 3½ cents, or 15*l.* for an English ton of pig-lead) is reached, Missouri can still maintain its own in the struggle for the prize. The rapidly increasing production of argentiferous bullion in Utah, Colorado, and Nevada, where the ore is treated for its silver alone, and where the silver is made to pay, in part or altogether, the freight on the lead to St. Louis, and even to New York, is an element in the lead market which cannot be controlled by any combination, and which has to be met in a more practical form than a set of resolutions decreeing on paper a minimum price for lead. This, indeed, seems to us to be the very key to the lead question, and it is pure folly to ignore or belittle it.

Notwithstanding these facts, there are some who entertain the opinion that in the case of war, the price of lead will advance, as such was the case during the Crimean War, and it is argued that there are more reasons now to justify this favourable expectation as to the future of the lead market.

Grogwinion, 3½ to 4; the monthly report states that the new discovery below the bottom level, in No. 3 lode, is yielding ore as rich as ever, and that it is now intended to extend the cross-cut at this point into the No. 4 lode, which is expected to prove equally productive. The 56 on No. 4 lode is exceptionally rich, and the stopes throughout the mine are looking so well, that the monthly sales have been increased to 150 tons, that quantity having been sold this week. Wye Valley, 1¾ to 2¼; the pumps are fixed in Tippett's shaft, and sinking progressing well, the lode already yielding good lead ore. The 22 east continues to advance in most favourable ground, and produces both lead and blende. The bottom level has also very much improved, and good discoveries are likely to soon be made. West Wye Valley, 3¼ to 3¾; the sales of lead have been increased from 40 to 60 tons per month, the latter quantity having been sampled for current month. The mine continues to open out very productively, and the workings as extended in depth disclose a continuous improvement of a most satisfactory nature.

Caron, 2¼ to 2¾, cum div.; the 100 west still continues to improve in a favourable manner, and the same level east is now yielding both lead and copper, and looking exceedingly promising for an early improvement. All other operations are going on well, and prospects are excellent. South Cwmystwith, 3 to 4; this mine has now commenced selling lead, a parcel of 40 tons having been disposed of yesterday, which will be followed by further quantities in due course. The mine continues to open out well, and the new dam across the river stands firm, so that dressing operations are going on steadily. Saint Harmon, 2 to 3; the manager's report for the current month is the best that has been issued for a long time. It states that in the 67 west a strong lode has been cut into, yielding both lead and copper, and letting out a great deal of water. The same level east has also very much improved, and continues to show promising strings of ore. Besides this, the cross-cut towards the south lodes has materially changed in appearance, and it is expected that the south lode will very soon be intersected. Red Rock, 2 to 2½; the new discovery in the 60 east continues to yield well, and the stopes are returning a large quantity of lead. A new level has been started some fathoms above this point in the same run of ground, and it is already producing ore in paying quantities. All other points are still progressing satisfactorily, and the various tribute pitches throughout the mine are productive. Increased sales of lead may be shortly expected.

Mawston, 55 to 60; during the past week an improvement has occurred in the level driving from Wendley Hill shaft, and some rich ore has been discovered Some men were at once set to rise on this discovery, and are now up about 2 fms., where fine ore is being obtained. Several other points have also greatly improved. Hartington Moor Carbonate, 1½ to 2; a fresh run of carbonates has been cut, and looks promising. A fair quantity is being raised, and can be at once disposed of at a profit. Some fresh exploratory works are to be at once started in several promising looking parts of the mine. West Pateley Bridge, 2 to 2½; the developments at this mine at the lowest level are opening out in a manner to warrant the belief that they are entering upon a large course of ore. The agent reports the lode in the winze sinking below the 56 to be worth 1 ton of lead ore per fathom, and improving. This point of operation is looked upon as one of great importance to the future of this company.

Subjoined are the closing quotations:—

Assheton, ¾ to 1; Carn Brea, 44 to 46; Devon Great Consols, 2½ to 3; Dolcoath, 32 to 34; East Caradon, ⅛ to ⅜; East Van, 4 to 4½; Glenroy, ⅝ to ⅞; Great Laxey, 20 to 21; Hingston Down Consols, ⅜ to ⅝; Leadhills, 3½ to 4; Marke Valley, ⅜ to ⅝; Pärys Mountain, 8*s.* to 10*s.*; Pateley Bridge, 3½ to 4; Penstruthal, 4*s.* to 6*s.*; Roman Gravels, 8 to 8½; Rookhope, ¾ to 1; Tankerville, 3½ to 4; Tincroft, 11 to 13; Tyn-y-Fron, 1½ to 1¾; Van, 24 to 26; West Assheton, ¼ to ¾; West Basset, ⅞ to 1⅛; West Chiverton, 13 to 15; West Pateley, 2 to 2½; West Tankerville, ½ to ¾; Wheal Grenville, 3 to 3½; Almada and Tirito, ⅜ to ½; Birdseye Creek, ⅞ to 1⅛; Blue Tent, 3 to 3¼; Cape Copper, 29 to 31; Cedar Creek, ¼ to ½; Chontales, ½ to ⅝; Colorado Terrible, 1½ to 2; Condes of Chili, ¼ to ¾; Don Pedro, ½ to ¾; Eberhardt and Aurora, 5¾ to 6; Exchequer, 1-16th to 3 16ths; Flagstaff, ⅝ to ⅞; Frontino and Bolivia, 1½ to 1¾; Hornachos, 12½ to 13; Hultafall, 5 to 5½; Javali, ½ to ⅝; Kapanga, ¼ to ⅜; Last Chance, ⅝ to ⅞; New Quebrada, 1½ to 1¾; Oregon Preference, 4 to 4¼; Pestarena, ⅛ to ¼; Plumas Eureka, 2¼ to 3; Port Phillip, ⅜ to ⅝; Richmond Consolidated, 9½ to 9¾; St. John del Rey, 300 to 310; Sierra Buttes, 1½ to 1¾; South Aurora, 2⅛ to 2⅜; Tecoma, ⅛ to ⅜; United Mexican, 2 to 2½.

COLLIERIES.—There is little or no change to note in these shares, business having been restricted, and very few transactions having taken place. Reports from the coal districts are, on the whole, promising, and while prices are not materially altered, a better tone prevails. From Barrow we learn that the steel trade is active, and a greatly improved demand is expected for railway and other material. The pig-iron trade generally is looking up a little, though prices are still very low. The Lancashire coal trade is not in a satisfactory condition, many pits being on short time, and scarcely any working at a profit. Chapel House is an exception to the rule, work being in full swing at this colliery, and sales being even in excess of the raisings, and realising good paying prices. We learn that the new shaft, which recently reached the Park Mine, is to be continued at once down to the deeper measures, and it is thus evidently the intention of the directors to make the colliery one of the most important in the district. No improvement is reported from Nottingham, though the Midland Railway carried southward nearly 28,900 tons more coal last month than in the corresponding month last year. At Langwith Colliery, belonging to the Sheepbridge Company, a good seam of coal 5 ft. 10 in. thick has been reached at a depth of 538 yards from surface, and the New Hucknall Company are reported to have reached the coal with their second shaft. Reports from Newcastle and Hull are better, a fair trade being done in steam coal, which some of the Northumberland collieries are now again working full time.

South Wales complains of dull trade, but is evidently better off than most districts, and is doing more trade than for some time past. Steam coal is in good demand, and pig iron is more active. There is an improved enquiry for all the better makes of iron and steel, and this must rapidly grow, as the large railway companies continue to replace the old iron by new steel rails. The Ynisced wyn Company, which has been recently registered, has been formed for the purpose of taking up and working valuable anthracite collieries, besides the world-known Ynisced wyn Iron and Steel Works, from which in past times metal has been turned out which could beat all other brands out of any market. In fact, the quality was always so excellent that it commanded a ready sale at high rates even in most depressed times. The increasing use of anthracite coal for steam purposes, for which it answers admirably when burned in a properly constructed furnace, points to a very large market for this fuel, and the new company's coal, being the best of its class, will no doubt find a ready market. The company, therefore, looks forward to a very successful career, and we see no reason why its hopes should not be fully realised. No change is reported from Altami, the shares of which close at 4 to 5. Llay Halls are at 8 to 10; Mold Argoed, 1 to 1½; Thorps Gawber, 2¼ to 2¾; New Sharlston, 3¼ to 3¾; Newport Abercarn, 4 to 4¼; Cardiff and Swansea, ¼ to 1.

The LOSSIEMOUTH LEAD MINING COMPANY, with a capital of 30,000*l.*, in shares of 5*l.* each, has been formed to purchase for 16,000*l.* (of which 6000*l.* is to be in cash) from Mr. L. C. Hill the lease of the Stotfield Lead Mining Property, situated near Lossiemouth, in the county of Elgin, N.B., together with all interest in the shaft and other workings, lead ore, plant, &c., now on the property, and to continue to develope and work the lead mines and lodes thereon. The property is described as being crossed by two powerful almost vertical lodes, one running north-east and south-west, and the other east and west, which intersect each other near the shaft; the former has been traced ore bearing for a distance of 77 fathoms east and 230 fathoms west of the shaft. There is a regular course of ore running along the south wall, which is estimated to be worth 2 to 3 tons of lead per fathom, and also an immense deposit is found, probably caused by the junction of the two lodes; the outcrop of this is exposed at low water, and is seen 100 ft. long and 27 ft. wide, containing good ore throughout, but is stated to be much larger. It is confidently expected that, independent of the deposit at the junction, the ground to the south of and above high-water mark will yield 150 tons of ore per month, and should this deposit improve and consolidate in depth, as there is every reason to expect will be the case, immense quantities can be raised. It is estimated that the sum of 3*l.* per share will be sufficient to develope the mines and erect dressing-floors, and it is not intended to make any further call until the mine has been proved, and then only in the event of further capital being required to provide pumping and hoisting machinery, tramways, &c., and to enlarge the dressing-floors when the main deposit of ore has been reached. The prospectus will be found in another column.

The YNISCEDWYN COMPANY, to the formation of which, with a capital of 60,000*l.*, in shares of 10*l.* each, reference was made in last week's Journal, proposes to purchase and work the well-known Ynisced wyn and Abercrave Collieries, as well as the Ynisced wyn Steel and Iron Works, situate at Ynisced wyn, about 13 miles from the port of Swansea. The works are connected with the Midland, the Great Western, and London and North-Western Railway (having their own branch railways and sidings, all of the standard gauge, capable of accommodating at least 1000 railway tracks at one time), and are thus in direct communication with all parts of the kingdom. The property (over 3500 acres of minerals, about 400 acres of surface, including several farms, a number of cottages, a mansion and agents' houses) is held upon exceptionally favourable terms, under various leases. There are four large collieries, fine iron and steel works, together with a good-sized foundry, and altogether a most efficient plant. The ironworks are among the oldest in the kingdom. Ynisced wyn iron is in great demand for tin-plate works, and, South Wales being the chief seat of the tin-plate manufacture, the works are much more favourably situate for supplying the pig-iron required than the hematite furnaces of Barrow and elsewhere. The steel-works have been built under most elaborate designs, and in a most costly manner, but are not yet quite completed. They will require an outlay of between 200*l.* and 300*l.* to get into operation. It should be understood that the steel made is not the common steel of the Bessemer or Siemen's process, worth from 7*l.* to 10*l.* per ton, but Sheffield tool or cutting steel, worth 60*l.* per ton, or even more, in samples of exceptional excellence. The prospectus will be found in another column.

At the United Limmer and Vorwhole Rock Asphalte Company meeting, on Thursday, an amendment to the directors' report was moved by a shareholder, and unanimously carried, to the effect that no dividend should be paid for the past year, but that the money available for that purpose should be devoted to the part payment of the asphalte mine in Sicily. The report as amended was adopted, the retiring directors were unanimously re-elected, and Messrs. Gaul and Jackson were appointed auditors.

TANKERVILLE.—The engine-shaft is down nearly 10 fms. below the 192, in a rock of most favourable character, and there is every prospect of finding a rich lode at the next level, now nearly reached. In the bottom of the 192 they are sinking a winze on a lode 6 ft. wide, worth 5 tons of lead ore per fathom, and it looks like the top of a good bunch of ore. The month's sale of 100 tons realised 1155*l.*

WEST ROSKEAR.—The new engine-house will be ready for the 60-in. cylinder-engine in about three weeks. During the last few days an important improvement has taken place in the 12 fm. level west, where the lode will yield more than 2 tons of good copper ore per fathom, with every indication of shortly leading to a rich course of copper. The mine sold on the 11th instant 7 tons of silver-lead ore at 20*l.* 17s. 6d. per ton. As soon as the new engine is put to work, to enable the eastern part of the mine to be vigorously worked, it is expected that the company will be able to return considerable quantities of rich silver-lead ore, besides copper ore and blende.

DERWENT.—These valuable lead mines continue to improve, as will be seen by the report in to-day's Journal. The different points in operation are of the aggregate value of above 15 tons per fathom, several of which are daily becoming richer, and important discoveries are looked for soon, particularly on the Sun vein. The return for the past month has been about 30 tons of pig lead, with every prospect of a considerable increase.

*** With this week's Journal a SUPPLEMENTAL SHEET is given, which contains—Original Correspondence: Utah Mines, and their Geology—No. 11; Geology of the Pacific Coast (J. Barwise); Frontino and Bolivia Mine; the London Coal Supply; the Kearsley Colliery Explosion (W. H. Daniels); Destruction of Fire Damp; Prize Blowpipe Apparatus: Rock-Drills—the Challenge (Salmon Barnes and Co.); Welding Cast-Steel Borers; Rock-Drills (Kennedy Brothers); the Mining Interests of Great Britain (R. Tredinnick); Public Companies, and Liquidation; Blaen Caelan Mine; Mining as a Profitable Means of Investment (C. Bawden); Monydd Gorddu (J. G. Green); Wheal Uny, and its Management (W. Rich); Lead Mines; Lead Mining in Scotland; Keswick United Silver-Lead Mines Company; Lead Mines in the North—Grassington, Pateley Bridge, West Pateley Bridge, &c.; the Assheton Lead Mining Company; Hingston Down Consols; Coed Mawr Pool Mine (W. McFarlane); Cornish Silver-Lead Mines; A Singular Character; D'Eresby Mountain Mine; South de Eresby Mountain (W. Reynolds, J. Smith, secretary); Kingston Consols, and Tyllwyd Mine; Collapse of the Kit Hill Tunnel Scheme—Foreign Mining and Metallurgy—Scotch Mining Share Market—Patent Matters—Meetings of D'Eresby Mountain, Wheal Owles, New Tyllwyd, and Roman Gravels Companies, &c.

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2.—ZINC AND LEAD ORES MIXED TOGETHER, BUT DRESSABLE KINDS ONLY.

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Notices to Correspondents.

*** Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be *filed* on receipt; it then forms an accumulating useful work of reference.

BURRY PORT SMELTING COMPANY.—I shall feel obliged if any reader will give me some information respecting the winding-up of the Burry Port Smelting Company, whether there is likely to be a dividend, and how much? I am a shareholder in three companies, two of which have had to liquidate on account of the failure of the Burry Port Company, but cannot get any satisfactory information. —S. B. M.: *Manchester, March 26.*

COMPRESSED FUEL.—As I observe that the question of compressing small coal, or perhaps agglomerating it would be a better term, has again been raised in Westphalia, I would suggest that too much attention can scarcely be given to the form of the block. There is, I believe, no form so good as the sphere. I have seen 4-in balls burn admirably; they pack almost as closely as the cubes in the bunker, yet in the furnace there is always a good draught through them, and they seldom require touching after they are once fed in. There are no corners to knock off and powder, and altogether they are much more economic.—CARBON.

STEAM ON TRAMWAYS.—Can any correspondent inform me through the Journal whether in those cases in which steam has been used upon tramways in this country the authority has been formally obtained from the local boards of control having charge of the roads, or whether the steam has merely been used as a matter of course? I should also like to know whether any accident has resulted (I hear that there has not been a single case) to the passers by or others from the use of the steam-engine. Has the red-flag rule been observed?—H. E. F.: *March 23.*

SHARE DEALING.—We never interfere in the sale or purchase of shares; neither do we recommend any particular mine for investment or speculation, or broker through whom business should be transacted. The addresses of most of the latter appear in our advertising columns.

Received,—"N. M." (San Francisco): It has been forwarded—"Miner" (Combmartin)—"J. M." (Leeds)—Dr. Lindsay (Perth)—"W. T." (Ballydehob)—"G. P." (Ashburton): A letter for Mr. George Henwood, sent to our office, will be forwarded—The letter on "Accountants," signed "A Thoughtful Woman," is not worthy of publication. It is simply very silly—"Shareholder" (Llanrwst): The letter cannot be inserted, for reasons which may now occur to the writer—"Constant Reader" (Neath)—"Shareholder" (Elbe Colliery)—"Constant Reader" (Redruth)—"Nemo" (Camborne): The statement did not appear in the Journal—the publication of the lengthy correction is, therefore, unnecessary.

THE MINING JOURNAL.

Railway and Commercial Gazette.

LONDON, MARCH 30, 1878.

PEAT FUEL.

Seeing that our knowledge of all that relates to fossil fuel or coal has been said to be nearly complete, as the subject has received special attention, not only from our old and able writers but from our best-known modern geologists as well, it is rather to be regretted that comparatively little has been written with respect to peat, which in all probability was known and used at a much earlier date, more especially for domestic purposes. Peat being decomposed vegetable matter is evidently closely related to coal, and in all probability has been one of the early intermediaries in the passage of wood into that mineral, for it contains some of the principal essentials which make it so valuable. It has a certain amount of oleaginous matter that is capable of being profitably utilised for several purposes, as well as being well adapted for fuel where coal cannot be readily obtained unless at a very high price. Carbon is the principal ingredient in coal, and there is also a considerable percentage of it in peat, which causes it to burn with tolerable freedom, giving out a very fair amount of heat. In the formation of coal the carbon increased step by step until the wood becomes fossilised. At starting the carbon in the wood was about 7·75 per cent.; next was the peat with 34·48 per cent.; the next stage was the lignite with 49·21 per cent.; then there was the Staffordshire thick coal that gave something like 72·65 per cent.; then followed the South Wales steam coal increasing to 89·97 per cent., and anthracite 93·88 per cent. These figures show the progress—slow, but sure—by which woody matter in the course of vast ages was converted into coal on the spot where once grew luxuriant forests in a climate warm and moist, and not subject to changes.

That period, having passed away, has never been repeated, and hence it probably is that we have both lignites and peats in their present state extending over vast areas in most parts of the world, and although not so valuable as coal, well adapted for many purposes. The extent of the known coal fields of the world is tolerably well defined, but we have no information as to the probable area that is covered by peat, which must be much larger. In Great Britain alone what are termed the peat mosses are estimated to cover 3½ millions of acres, whilst in Ireland they have an area of about 6 millions of acres. Some of the beds have been of comparatively recent discovery, and are highly interesting. Such, for instance, is the bed found some two or three years ago whilst forming the new docks at Holly Hazle. Whilst at work the men exposed a bed of peat of a maximum thickness of 14 ft., composed principally of oak, alder, beech, and hazel. It was overlaid by about 8 ft. of fine silt resting upon potters' clay, below which was the red marl. Here we have a submerged forest being converted into peat, the bottom of which was about the height of mean low-water mark in the Severn. In the Isle of Ely there is also an interesting section of peat, in which brachcephalic skulls have been found.

In both Scotland and Ireland the peat is the only fuel in many districts, and varies a great deal, not only in quality but in thickness as well. In the Highlands the peat seldom reaches more than 6 ft. or 7 ft. in thickness, whilst the Lowland bogs are from 50 to 80 ft. thick. In some instances the turf is black and nearly as hard as stone, and in others it is light and spongy. Nitrogen has been found in most descriptions of peat, being caused by the decomposition of the plants. The Irish bogs are generally supported by an underclay, with roots of oak and yew. Above the roots of the oak, what are known as the "red bogs" of Ireland, in the central plain, rest on a similar strata to coal, an underclay penetrated by the roots of trees. Above the corkers or roots there is a variable thickness of peat, and above that the remains of a pine forest, with corkers in horizontal layers, whilst relics of human workmanship have been found under the peat. An authority on the Irish peats, in the case of the Castleconnel bog, in the county of Limerick, estimated that 5000 years must have elapsed since the oak forest began to grow there. In other parts of Ireland some of the carboniferous rocks are covered in places by extensive alluvial flats and bogs. The quality of peat raised in Ireland as fuel alone is now very large, and it is understood is on the increase for other purposes as well. As might be expected, when coal is scarce and dear on the Continent peat is an important article, and in many places is worked systematically, and disposed of according to quality. In Holland 40 million tons of peat are made annually, and it is divided into four classes. The first is known as "long turf," from the high fens, and is light and fibrous; "short turf," which is obtained by dredging the water-covered turbaries, and is cut into short bricks; "derrie turf," worked from under the sand-dunes on the coast; and "rahdr turf," made by machinery.

In France there are extensive deposits of peat, and and in some of the beds bones and Roman coins have been found, showing that they are of more recent date than the period of the Roman occupation of the districts. But there is reason to believe that the peats were more intimately connected with the coal measures in that country than is generally supposed, for on stratigraphical grounds it has been shown that the northern coal fields of France owed their origin to the oscillation of the sea coast, whilst the more inland basins had been formed in bogs and marshes. In some of the French bogs the deposits vary considerably. Around Dunkirk the highest litteral bed of peat is 2·40 metres above sea level, and the lowest 6·40 metres below the sea level. In some of the deposits flint implements, polished flint axes, and stone hatchets have been found. In Italy a good deal of peat is used, and large quantities are also raised in Russia, where the deposits are most extensive, in some instances yielding oil. Indeed, in the North of Europe the peat is much used instead of coal, the cost of which is beyond the reach of a vast number of the inhabitants. In Sweden also the peat is being worked, and, singular to say, at one bog iron ore was found that gave upwards of 50 per cent. of metallic iron. This suggest a most important question as to whether in other peat deposits iron ore may or may not be found. For various purposes peat has been carbonised or charred, and has also been distilled, and there is no doubt but what it could be utilised to a far greater extent than it has been, and if worked out a large area of land might be reclaimed and brought under profitable cultivation. There is certainly no reason why nearly 10,000,000 of acres in the United Kingdom should be mere bog land, when a large proportion of it could be made to increase our own supplies of food, and whilst finding employment for skilled and unskilled labour add considerably to the material wealth of the country.

GASES IN MINES.

Carburetted hydrogen, or fire-damp, is not the only deadly enemy in the shape of gas which the miner has to contend with whilst following his ordinary employment, for there are others equally insidious, although their presence may not be indicated in the same way, or be quite so devastating. But as a rule they can be successfully overpowered by precautionary measures, with which every person employed underground should be familiar. Of this we had an unfortunate instance at Barnsley only on Sunday last, when three lives were sacrificed unnecessarily from want of ordinary care. Engaged at a colliery which had only been re-opened a short time after standing for some years, the men went into a place where there was little or no ventilation, but where there was a considerable quantity of carbonic acid gas, which is very different to fire-damp, which is lighter than air, and is looked for in the roof of working places. But the carbonic is heavier than air, its specific gravity being 1·924, and supports neither combustion nor life, and from its specific gravity accumulates near to the floor.

The gas is generally found in places where the air has not been renewed, and this was undoubtedly the case at the Barnsley Colliery on Sunday last. There was only one shaft to the colliery, and there was consequently all the greater likelihood that it would contain much more carbonic acid gas than would be the case where there were two shafts, and the mine constantly at work, so that the greatest precautions were necessary on entering the places that had been standing for some time, and by acting with great caution to see that there was sufficient air to support the combustion of the lights, for the latter would be extinguished in air mixed with one-tenth of carbonic acid. This was not done, and the underground manager or overman does not appear to have made any examination before he went down to the workings with the other two unfortunates, and what was most unfortunate there were no other persons in the bottom at the time to raise an alarm so as to bring help, otherwise there might have been some hope of recovery. The consequence was they were all completely overcome by the suffocating power of the gas, after and in all probability making some effort to escape. But there were no persons near to give them a helping hand, for in similar cases life has been recalled, although slowly, by ordinary appliances and perseverance.

One of the men, it was stated, when brought to the surface breathed once or twice; but, as is generally the case, had there been a chance of saving any of them the necessary remedies would not have been at hand. We have, however, another illustration of carelessness, resulting in loss of life, which could not by the most ordinary precautions have taken place. And here we think we could suggest an improvement with respect to all mines, for the men working in them are all liable to accidents more or less dangerous, and that is to have at the pits the remedies necessary for anything that might occur, with instructions how to use them. In the case of inhaling carbonic acid gas, for instance, suffocation takes place in a very short time, and is only preceded by some pains in the head and eyes, and where recovery takes place is followed by some days' illness, and more particularly by violent headache. The French Government, many years ago, issued instructions for the recovery of all persons who were injured by accidents in mines, and we think our Government could not do better than follow the example. Most persons connected with collieries know that from burns caused by explosions the best application pending the arrival of a surgeon is a mixture of equal parts of lime, water, and sweet oil, but very few know what to do in the case of partial suffocation by carbonic acid gas or after-damp. The remedies to be applied in the first instance, including the effusions of cold water over the head and neck in particular, are such as could be easily carried out, but it is necessary that they should be known, and, as we have before stated, our Goverment could not do better than have them printed and placed on the pit hill of each colliery, for it often happens that a colliery is distant from a medical man two or three miles, if not more, so that a considerable time must elapse before his services can be obtained, however serious the accident may be for which he is required.

OUR COAL ABROAD.

Although the year is still young, statistics are beginning to accumulate in illustration of the progress of our export coal trade. Combining together the exports of coal (the expression coal including also coke, cinders, and patent fuel) and the quantity of coal shipped for the use of steamers engaged in the foreign trade, we find that in January and February this year 2,599,824 tons of coal left the shores of the United Kingdom. The corresponding shipments in the corresponding period of 1877 were 2,415,021 tons, and in the corresponding period of 1876, 2,620,126 tons. It will be seen that the shipments have been moving on this year at the very substantial rate of 15,598,944 tons per annum, although in the winter months deliveries to the North of Russia are necessarily suspended. France is still our largest external coal consumer, having taken in January and February this year 541,142 tons, as compared with 485,491 tons in the corresponding period of 1877, and 647,582 tons in the corresponding period of 1876. It is not a little remarkable that, in spite of the great progress which coal working has undoubtedly made in France during the last 25 years—in spite, too, of Belgian and German competition—the consumption of English coal in France is now proceeding at the rate of somewhere about 3,000,000 tons per annum. The only explanation of the fact can be found in the remarkable growth of steam power in France in the course of the last 50 years. Notwithstanding their proverbial fickleness and excitability, the French have shown throughout all their national vicissitudes that they possess an eye for the main chance. The great revolution of 1789, in spite of many deplorable excesses, established once for all the great principle of equality before the law, and secured by consequence equal legal rights and equal legal protection for all. An incentive was thus given to industry and enterprise in France, which, from a national point of view, has been productive of great material results.

France has had three Republics and two Empires since 1789, and a dangerous class has, undoubtedly, sprung up in her great cities, and especially in Paris. It is a sad truth that this dangerous class has called, so far as Paris is concerned, for periodical extermination; but in spite of occasional violence and bloodshed in Paris, provincial France has thriven, and has accumulated wealth to such an extent that some of it has even overflowed into foreign lands. This being the case, it is not surprising that the steam-power which has created the wealth with which France is undoubtedly now endowed should have absorbed very heavy supplies of coal. Had the French been disposed, as a people, to prosecute coal mining industry with the same vigour which has been exhibited by their neighbours in this particular, they might, we may fairly suppose, have established an equilibrium between the coal consumption and the coal production of their country. But the French are not, as a people, very fond of coal mining. Too much of their strength, as a nation, has also been absorbed by the huge army which almost every French Government—whether Bourbon, Bonapartist, or Republican—has deemed it advisable to maintain; and although during the last 20 years French coal mining has certainly achieved some progress, still the demand for foreign coal—that is English, German, and Belgian coal—upon the French markets is still very heavy. It will be noticed that there has been some increase in the French demand for our coal this year; this increase is attributable, no doubt, to the gradual growth of steam-power year by year in France, but it is also largely due to the more settled aspect of French politics, in consequence of the conciliatory course now pursued by Marshal MACMAHON towards the majority in the Chamber of Deputies. We have devoted considerable space to an analysis of the circumstances attending the French demand for our coal, but we ought to remark that there has also been a large movement of our coal this year to Spain and Italy, 153,890 tons having gone to the first named country, and 189,526 tons to the second. The demand on British Indian account has also been considerable.

COPPER MINES OF LAKE SUPERIOR.

The Lake Superior Copper Mines total production:—

Years.	Tons.	Value.	Years.	Tons.	Value.
1845-58...	13,955 ...	$9,500,000	1869...	12.200 ...	$5.368 000
1858.....	3.500 ...	1,886,000	1870...	12 946 ...	5,696,240
1859.....	4,300 ...	1,890.000	1871...	12,857 ...	6,171.360
1860.....	5,800 ...	2,610 000	1872...	12,132 ...	7.774,720
1861.....	6,000 ...	3,337,500	1873...	14,910 ...	8.200,500
1862.....	8,000 ...	3,402,000	1874...	17.780 ...	8,180 800
1863.....	6,500 ...	4,420,000	1875...	18,352 ...	8.390.860
1864.....	6,500 ...	6,110,000	1876...	19,224 ...	8,266,320
1865.....	7,000 ...	5,145,000	1877...	19,886 ...	7.556.680
1866.....	7,000 ...	4,760,000			
1867.....	8,200 ...	4,140.000	Total..	227,027 ...	$117,397,980
1868.....	9,985 ...	4,592,000			

The Atlantic Mine for 1877 produced 1440 633 2000 tons of mineral, with a net profit on ingot copper produced of $41,000, and the gross earnings $54,000; $13.000 of which were expended for needed improvements, which will materially lessen future clot of production. The yield of ingot copper to the ton of rocks crushed was but 1 per cent. This company will declare a dividend of $20,000.

NEW ZEALAND—"GOOD STURTS."—A Cornish miner, writing by last mail from the Coromandel gold fields, states from his own personal knowledge that three miners took a pitch on tribute in the Tokatea Gold Mine, and for three weeks' work they earned just before last Christmas the handsome sum of 1665*l*. They are still getting splendid gold, and there is no knowing what a fortune those lucky tributers will get; so this is likely to be a good sturt. The writer says—Then again there were two men that took up a piece of ground close to the Kapanga Gold Mine, and on their leader or lode which runs into Kapanga those two men have divided 700*l*. a man for two months' work, and it is likely they will shortly get as many thousands, there being every indication and prospect of the continuance of the gold in depth; so here is another good sturt.

LARGE GOLD NUGGETS.—A nugget was found in the Ural Mountains in 1849 weighing at least 94½ lbs. A considerable number have been found in the same quarter weighing between 13 lbs. and 27 lbs. The largest nugget reported in the United States was found in North Carolina in 1821, weighing 23 lbs.; another from the same quarter had been previously found in 1800 weighing 28 lbs. A nugget of 37 lbs weight is described as having been found in the island of Hayti in 1502. A nugget weighing 21 lbs. was found in Brazil in 1832; another of 45 lbs. was found in Peru in 1730; also one of 25 lbs.—Quite a sensation was caused at Sandhurst on Dec. 31 through the exhibition of a 75-oz. nugget. It appears that James Webster, a well-known old miner, was at work at the Whipstick in a shaft 40 ft. deep, and was engaged stripping cement for crushing, when he came across a welcome stranger in the shape of a nugget of very fine gold, weighing 75 oz. 5 dwts.

Eighteen mines of Nevada yielded the sum of $3,944,819 in gold and silver bullion during the month of January, 1878. Of this amount the California produced $1,774,068, and the Consolidated Virginia $1,613,162.

THE POTOSI MINES.—A highly interesting collection of silver ores from the celebrated Potosí Mines has just been brought to this country by Mr. JULIO NAVA, of Fitzroy-square; and in the hope of encouraging the application of British capital to the development of the mines of Bolivia, he has made arrangements for showing the minerals to those interested. The collection, which will give a fair idea of the silver ores generally of the Department of Potosí, is composed of 450 specimens of silver ore, all these specimens varying in quality and of different formations. The richness of the ores varies from 20 to 8000 marks per Spanish cajon. (The mark is equal to 8 ozs., and the cajon to 2500 Spanish pounds.) The specimens are taken from the following mines:—Montserrat, Arenas, Moropoto, Rey Socabon, Real Socabon, Socabon, San Bartolomé, and many others. The mine called Socabon de San Bartalomé produces daily from 1500 to 2000 marks of silver. The collection is altogether well worthy of inspection.

COAL AND IRON IN THE UNITED STATES.—The pig-iron market at Pittsburg has continued dull, and prices have been in favour of buyers, although not quotably lower, as compared with last week. Only a light business has been passing in wrought-iron pipes at Pittsburg, but it is expected that there will be a good spring and summer trade. In steel there has been a fair amount of activity at Pittsburg, and as it is believed that Congress will not disturb the duty on foreign steel a better and more cheerful feeling prevails; prices have not experienced, however, any change. Steel rails have continued firm, and have presented a fair amount of activity. It is expected that all the steel rail mills in the United States will have about as much work as they can get through with this year; some of them already have their production absorbed until October. At Cleveland, Ohio, sales of pig have shown more activity. The demand has been much better, but prices are still unsettled, competition being unprecedentedly severe. From Chattanooga we learn that the manufactured iron mills are all running full, with plenty of orders to assure them work during the spring. The total quantity of anthracite coal raised in Pennsylvania to Feb. 23 this year was 1,788,747 tons, as compared with 1,980 087 tons in the corresponding period of 1877. It will be seen that there has been a reduction of no less than 191,340 tons in the production this year.

NEW DUPLEX PUMP.—By direction of the Lords of the Admiralty some important trials have been made at Chatham Dockyard, of a new duplex pump, recently patented by Messrs. Blundell, of Limehouse, London, the pump being intended for use in the Royal Navy. The trials were made in the presence of Mr. R. P. Saunders, chief constructor, Mr. E. C. Warren, constructor, and Mr. Moore, foreman, and other officials. The water was pumped from a deep draught, and the merits of the pump as a fire engine were fully tested. Some idea of the efficiency of the pump may be gained when it is known that one of them is equal to eight single acting pumps having the same diameter of barrel and length of stroke. The trial gave the greatest satisfaction to the officials present. The experiments were superintended by Mr. George Blundell.

TECHNICAL INSTRUCTION IN THE SHEET-METAL TRADE.—A deputation from the Committee of the Tin-Plate Workers Society attended at the Artizans' Institute, St. Martin's-lane, on Tuesday evening, to witness and report to their trade on the technical teaching given the Tin-Plate and Zinc Workers Class. They were received by the pricipal, the Rev. H. Solly, and the teacher, Mr. C. T. Millis, and remained above an hour while the lesson was being given. On leaving they expressed themselves much interested and pleased with what they had seen. Two of the deputation, Mr. Pavey and another member of the committee, had been members of the Technical Class for Tin-Plate Workers, established some time ago under the late Frederic Warne at the St. James's and Soho Club, by Mr. Hodgson Pratt, but which was brought to a premature close by the lamented illness and death of Mr. Warne. The ignorance of journeymen in the sheet-metal trade with regard to the simplest principles of geometry, and their almost universal inability to cut out a pattern, is

deplorable (though probably not greater than in other trades), and it was in the hope of removing it that Mr. Warne strove so indomitably to finish his work, which is now the standard text-book on the subject. The Tin-Plate Workers City Guild propose establishing general classes similar to the one at the Artizans' Institute, and holding an exhibition of models, &c., this spring at the Mansion House.

REPORT FROM CORNWALL.

March 28.—There is no improvement worth noticing in the condition of the metal markets here in the West. Indeed, if there is any movement at all since our last it may be said to be in the direction of unsteadiness. Nor is it of any use anticipating anything better while the horizon continues so black in the East. War outright would do less injury at this juncture than this see-saw uncertainty. Then there would be some basis of operation. Now no one knows which way to look, and the calculations of the night may be completely upset by the news of the morning. Yet but for this foreign complication the prospect would not be at all unfavourable. Consumption is rapidly gaining on production, and there is very good evidence that our foreign competitors are in no better case to stand against the depression than ourselves. Indeed, they are really worse off, for the introduction of improved mechanical operations—notably of machine boring—and the general advance that has been made in economy and efficiency of dressing, the tin ores, of course, more especially, have put Cornish mines on a foundation of practical solidity, such as they never before enjoyed.

The value of looking carefully after the minor products of a mine was very well exemplified at Wheal Owles account. So far as Wheal Owles is regarded exclusively as a tin mine, there had been a loss on the quarter of 433*l.*—that is, on the actual working exclusive of interest. But Wheal Owles produces small quantities of other metals besides tin, and so a little copper and a little pitch blende and a little bismuth together make up the loss, and enable the "ditch to make the hedge." We are glad to see so excellent a report of the conditions and prospects of the mine. It is one of the old-fashioned cost-book concerns, with a small number of shares held by practical and responsible people. Had the bal been in 8000 sharea instead of 80 it would have had a harder battle to fight, for there would have been certain to be some holder either too blind to his own interests or too cantankerous to go along "One and All" with the excellent manager—Capt. Boyns. To anyone who knows what mining really is, however, there can be no clearer evidence of the vitality and good management of this mine than the fact that exploration is kept constantly ahead of the actual breaking of the ore, the ground opened amounting to nearly a mile a year. We shall be curious to see the result of the plucky manner in which tin has been stocked here. It deserves to pay, and even yet may.

There is to be an extension of the brick manufacture in Cornwall. It is now several years since it was discovered that the refuse from the clay works makes excellent bricks and fire tiles, and brick works have been established at Lee Moor, in Devon, and at several places in Cornwall. Now they are to be started at Par. In its clay work refuse Cornwall has an almost inexhaustible supply—quite apart from its natural and ordinary clays, which abound—of one of the best brick-making materials in the world, and Par is every way a first-rate place for a large development of the manufacture, since not only is the material itself abundant but there is every facility for the shipping of the product away to any part of the kingdom. There is no reason at all why Cornish bricks should not become an article of considerable commercial importance.

In the course of a lecture on "Lighting and Heating Agents" delivered at Plymouth Dr. R. Oxland, F.C.S., called attention to the fact that coal gas was first introduced for lighting purposes in Cornwall by Murdoch, one of the assistants of James Watt, who superintended the erection of mine engines in the vicinity of Redruth, and who in 1792 lit his own house and office at that place with gas which he made on the premises. Those were the days in which there were few public lights, and in which people who were out at night used to carry lanterns with them. Murdoch used to amuse himself by carrying a bag of gas, and lighting his way with that, "filling the minds of the natives with superstitious astonishment." In 1798 Murdoch lighted part of the Soho Foundry at Birmingham with gas. Dr. Oxland believes that even if superseded by electricity as a lighting agent there is a very wide field open for the adoption of coal gas for heating purposes to the supercession indeed of ordinary fuel for domestic use.

There was a thoroughly practical consideration of the all important question of the dressing of tin ores at the meeting of the Cornish Mining Institute on Tuesday, when Capt. Teague, than whom, it need hardly be said, there is no higher authority, introduced the subject.—[A full report of the paper and discussion appears in another column].—Some interesting points came out in the discussion, and it was more than hinted by Capt. Rich that the tin occasionally went down the Red River in sacks, to which Mr. Bolden rejoined that the tin streamers had taught the miners many useful lessons, and that they caught the tin by reason of their improved machinery. Capt. Tregay pointed out that 30 per cent. had been saved at his mine by the use of the stone-breaker; 50 per cent. when dealing with exceptionally hard stuff, besides the advantage at the stamps. Mr. Hocking introduced the subject of the Elephant stamps, and said that the patentee would supply the machine, lay it down, and work it for three months at his own cost, and if it did not meet with the approval of the agent take it away at his own expense; the company to find the driving. Capt. Charles Thomas accounted for the great waste that went on by the smallness of the slime pits and the thickness of the slimes, in consequence of which it was impossible to properly operate on the thick slimes, and those who had charge of the pits were not sufficiently careful, but allowed the slimes to overrun, hence the waste.

Captain Abraham James said that buddles had been found to be utterly inadequate to do the work they were called upon to perform; they were simply useful in taking off the "crop." He entered into a calculation to show the difference made in the returns on account of the stuff going to the smelters in a wet condition, and said that if they insisted upon selling at least a tenth more than they sampled they would not find as much stuff going into the Red River. All this shows that the Institute is doing very excellent work—work of a thoroughly practical kind. Captain Teague estimated the average cost of dressing tin at 9*l.* a ton, on which there certainly is still further scope for economy.

It is not only the adventurers in East Pool who are to be congratulated on the failure of the action brought against them at the Cornwall Assizes this week by Mr. Reynolds, of Trevenson, but tin miners generally. If such an action had succeeded, it would hardly have been possible to carry on the burning of arsenical ores at all; for some evidence could, of course, always be produced to prove some escape of arsenical fumes. However, it is now decided—and, indeed, the weight of the evidence left no choice—that calcination, as carried out at East Pool, is properly conducted, and is not inimical; and this is a most important result for the mining interest.

SINGULAR ACTION AGAINST MINE OWNERS.—In the Nisi Prius Court at the Cornwall Assizes yesterday, before Sir James Fitzjames Stephen, a case of considerable importance to the owners of mines was tried. An action was brought by Mr. Reynolds, of Trevenson, near Pool, to recover 50*l.*, the value of a horse said to have been killed by means of arsenical deposits coming from the arsenic burning houses of East Pool Mine, and falling upon the grass in the field in which the animal was grazing. The stomach of the horse was analysed, and grains of arsenic were found in it, and evidence was called to show that there were not those arrangements existing in the mine which would condense the arsenic gases into arsenious acid, or the sulphuric acid, but that these escaped from the shaft, and poisoned the surrounding vegetation. The mine adventurers were made to be defendants, and they produced evidence to prove that no appreciable quantity of arsenic escaped, and that everything was done that could be done to prevent the outflow of any poison. It was also argued that there were scores of these works in the country, and that if they were subject to actions of this character no mine could go on making arsenic or raising the tin stone from which the acid was obtained. Dr. Otland and Mr. Collins, the county analyst, were examined in support of the defendants' case, and the jury gave a verdict for the defendants.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

March 28.—There is no falling off upon the week in the amount of work doing at the collieries, whether regard be had to the furnace or forge or house coal pits. Some colliery owners are trying to get rid of their properties. Last week several such concerns were in the market, but the results did not prove satisfactory to the would-be vendors. The close of the quarter is influencing the generality of local pig-iron buyers to restrict their purchases to narrow limits. Prices are unchanged. Consumers of finished iron are mostly just now waiting to see what the Quarterly Meetings on the 10th and 11th of next month will bring forth, but it is extremely improbable that there will be any alteration in quotations.

The Excelsior Ironworks, Smethwick, have been purchased from the trustees by Mr. John Elwell, iron merchant, of Birmingham, and he has restarted the works for the manufacture of best Staffordshire hoop, strip, and bar iron. Messrs. E. P. and W. Baldwin have released their tin-plate works in Wolverhampton, which they propose to put in good repair, with a view of reopening them.

A meeting of the Mill and Forge Wages Board has been held in Birmingham "to consider the action of certain employers, who are members of the board, in reducing the wages of some of their workmen below the amount awarded by Mr. Chamberlain, M.P." The committee were of opinion that "no reduction beyond that awarded by the arbitrator should be enforced without first consulting the board."

A fresh reminder of the very gratifying liberality which the public display on the occasion of a great colliery calamity is afforded in the just published accounts of the Pelsall Hall Colliery Inundation Relief Fund from the end of October, 1873, to the close of last year. It appears that a total of 6703*l.* was subscribed. Out of this the committee are distributing weekly payments to widows and orphans, and are paying the school fees of some of the orphans; and in this way the sum of 2551*l.* has been spent. The other chief item of expenditure in the accounts is 278*l.* for funeral expenses, monumental tombstone, &c. The committee have still in hand 3665*l.*, invested partly in Lloyd's bank and partly in Great Indian Peninsula Railway stock.

I am pleased to be able to report an advance in the market value of the shares of the splendid Sandwell Park Colliery, due in part, no doubt, to the influence of the recent good news from Hamstead; 3⅜ prem. is now the quotation of transactions, and holders remain out of the market, with would-be buyers offering 3¼ prem.

In the North Staffordshire Coal and Iron Trades there has been no change during the week calling for note.

A gloom has been cast over business circles by an explosion, on Wednesday, at No. 1 Burley Pit of the Apedale Colliery, near Chesterton, owned by Messrs. Stanier and Co., which it is feared will result in the loss of the lives of 34 workpeople. This regret is shared in throughout the whole of North Staffordshire.

It is of interest that at the current Staffordshire Assizes verdicts of "Not Guilty" have been returned in the charges of Manslaughter brought against two colliery engineers in connection with fatal machinery accidents.

The coalowners and men of Warwickshire have mutually agreed that the wages of the pickmen shall be reduced 4d. per day—about 8½ per cent., and those of other men in proportion.

Muntz's Metal Company (Limited) annual meeting was held on Monday, Mr. Jaffray presiding. The directors' report stated that the disposable balance on the year's transactions, including a balance of 9352*l.* from last year, was 42 981*l.* 10s. 5d. They recommended a dividend of 10 per cent., and a bonus of 2½ per cent., to set aside 4000*l.* to cover bad debts and probable liabilities, and write off 1000*l.* from machinery and tools, and 848*l.* 6s. from land and buildings, leaving a balance to carry forward of 14,786*l.* 0s. 8d. The report was adopted. —The Chairman, in responding to the vote of thanks to the directors, said that he had never sat at a board the members of which devoted more independent thought to the concerns of the company. They all more or less knew something about the stuff with which they were dealing, and those who, like himself, did not, knew something of the general principles of business which regulated great concerns. Each in his individual capacity contributed to the general stock of knowledge which regulated the affairs of the company. He must, however, say, in fairness to one of his colleagues—Mr. Albert Muntz, the managing director—that no inconsiderable share of the thanks for the result was due to his skill and prudent management; and in their secretary they had a man as well qualified to co-operate with Mr. Muntz as any officer in his position could be.

The CAKEMORE COLLIERY COMPANY have received the following report from Mr. W. B. Ensor, of West Bromwich, who is erecting powerful machinery for treating the well-known Staffordshire blue clay, of which this company possesses an inexhaustible quantity:—

Eagle Foundry, March 27.—In reference to your brickworks and colliery at Cakemore, I beg to say I have made a careful and thorough examination of the same. There appears to be a practically inexhaustible mine of a very superior quality of clay, suitable for the manufacture of blue, red, or brown bricks, tiles, or quarries of the very best quality. My father and myself have been engaged in advising and erecting brick and colliery plants throughout the country for the past 30 years, and I must admit that I have not found greater facilities than you will possess for the production of bricks or getting of coal.

On the completion of your new machinery, which will be second to none in this district, you will be able to produce at least 200,000 blue, red, or brown bricks, tiles, or quarries per week. Now, having a good supply of coal on the spot, a canal basin, and as it is proposed to run in a siding from the Great Western Railway, your cost of making and delivery will be much less than your neighbours.

WILLIAM B. ENSOR.

TRADE OF THE TYNE AND WEAR.

March 26.—There is no improvement of importance to notice in the coal trade; there has been a little more shipping business during the past week, and freights have slightly improved. In the steam coal trade there is still a great deficiency of orders, and only a few first-class works are kept going regularly. Looking at the bulk of the works a little more than half time is the rule, and of course there is no chance of making any profit; indeed, further reductions in miners' wages are contemplated. The collieries lately stopped will, of course, remain in that position until better times arrive. At Dudley and Holywell and other collieries reductions are to be insisted upon of from 3d. to 4d. per ton, and it is likely that if these requests are not acceded to by the men more works will be stopped. Winter so long delayed has now set in with great severity, and very heavy snow storms have occurred in Scotland and the North of England: this will, no doubt, operate favourably on the house coal trade, which has been extremely dull. In Durham great difficulty is experienced in working the collieries at a profit; only the best gas coal works are kept regularly going, contracts having been secured by some of them for long periods. At Heworth one of the seams has been stopped for the present were 120 men were employed, but if certain reductions are submitted to this seam will likely be started again. There is no improvement in the demand for coking coal, and manufacturing coal continues plentiful, and is selling at very low rates.

EXPLOSION AT WHEATLEY HILL COLLIERY.—Another explosion of gas has occurred at Wheatley Hill Colliery, one of the batch of mines in the Thornley district worked by the Original Hartlepool Collieries Company. Shortly before the first shift were making ready to come to bank a dull rumbling noise was heard traversing the main coal seam, which, together with a quantity of stythe which was felt to be present in the workings, too fully indicated to those near the shaft that an explosion of some kind had taken place, whether attended with loss of life or less serious it was impossible then to determine. Fortunately, Mr. Joseph Elwin, manager, and an overman named Hunter were officially engaged in the workings, and were at once made aware of some explosion having taken place. With commendable haste an exploring party was organised, headed by Mr. Elwin, to penetrate the workings to the seat of the explosion which, happily, was less than a mile distant from the shaft. Every precaution was taken against the stythe and afterdamp, which in some parts were very strong, and almost overpowering. After penetrating a short distance along the main coal seam workings the workmen were found who had been engaged in the immediate vicinity of the scene of the explosion. Their names are—Alfred Light, miner, severely burnt; George Urwin, putter, boy; and George Walker, deputy-overman, also burnt, but not to such an extent as to create any grave apprehension. The men were conveyed to bank, and placed under medical care. The colliery officials deemed it advisable to bring the whole of the men to bank, and a second exploration was made, the result of which showed that the explosion had confined itself to a very limited area, and that but slight damage was done to the workings. It is only fair to state that the men were working with safety-lamps. As to the cause of the explosion, nothing definite has been ascertained. It appears that one of the men has died since from the injuries he received.

The Government have purchased from Sir William Armstrong four 100-ton guns, at a cost of 16,000*l.* each, and negociations are proceeding for the acquisition of a number of small weapons identical with those already in the service. The same firm, as well as Sir Joseph Whitworth and Co., have accepted contracts to a large extent for the supply of iron gun-carriages, to be completed at an early date, and great exertions are being made in the carriage department at Woolwich in the preparation of wagons for transport service.

NORTH OF ENGLAND INSTITUTE OF MINING AND MECHANICAL ENGINEERS.—The members of the Société de l'Industrie Minerale of St. Etienne, France, have invited the members of the Institute to attend a congress, which will be held in Paris during the time of the French Exhibition, about the end of May next. The members of the Northern Institute have also received an invitation from the coalowners and mining engineers in the North of France to inspect their collieries. Both invitations have been accepted, and a general meeting of the members will be held at Douai on or about May 27, and the party will afterwards proceed to Paris.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

March 28.—Business at the mines and ironworks in Derbyshire is still very quiet, and a vast body of men are still but partially employed. In the lead districts there has been but little change for some time past, and the production of ore is but moderate, and far below that of former years. At the collieries in most instances the men are working about four days a week. The tonnage of house coal going to London has been kept up to the average, but the colliery owners still complain of the low prices at which they are obliged to sell, for they are such as to admit of no profits being made. The trade with other parts of the kingdom, more especially to the West, has rather declined. The wages question appears in a fair way of adjustment, as the coalowners connected with the Association, at the request of the workmen, have agreed to a 5 per cent. instead of a 7½ per cent. reduction, as proposed at first. At some of the collieries, however, the reduction has been from 6 to 10 per cent. It is probable, however, that unless there is a considerable improvement in the demand, together with an increase in the price of coal of every description, a further reduction will have to be made. At the ironworks, so far as the make of pig is concerned, there has been no change, whilst the demand is tolerably fair. Some of the foundries are favourably off for work, whilst others are not so, whilst puddlers and millmen are working short time.

In Sheffield some of the leading works are in a better position than they have been since the commencement of the year, and a considerable number of the men who have been in receipt of relief are now off the funds subscribed for the unemployed. At the heavy plate mills there has been a fair output for our own Government for forts. As yet our leading makers do not appear to have succeeded in the making of a mixed plate of steel and iron, so as to have a greater resisting power than iron itself. On Wednesday a plate, consisting of one-third iron and two-thirds steel, from the Atlas Works (Sir J. Brown, Limited) was tried on the target boat to the gunnery ship Excellent at Portsmouth. A chilled Pallister shot weighing 250 lbs. was fired at the plate at a distance of 10 yards, when a large piece of the plate fell bodily away. Other experiments will shortly be made with plates somewhat similar from the Cyclops Works. Bessemer rails are still as active as ever, and a steady business is also being done in tyres and axles. There has been no improvement with respect to cast-steel, except for one or two qualities for cutting and special purposes. Steel wheels are in slightly better request, and patentees are pushing them forward actively. Table and other cutlery is quiet, and there is not so much doing in saws, files, and scissors. The sheet and plate mills are better employed, and more hands have recently been set on. In foundry materials there is nothing new to report, for at most places they are able to find full employment for their hands.

In South Yorkshire the coal trade is particularly dull, and a large number of the miners are entirely idle, and several pits have been set down, seeing that whilst working they were carried on at a loss. At Dodworth Silkstone the men brought out their tools on Friday, and it is said the company will not again employ the old hands, with whom the differences as to wages have been incessant during the last twelve months. At other places also the men have had notice to leave, as the owners have determined to set down their pits until times get better. At present there are few collieries in the district that are actually paying, and the prospects as to the future are anything but promising. Four days a week is the average at the pit's working; but as the fine weather will shortly be with us, and the consumption of house coal diminished, even the present limited hours will be less. The fact is that there are by far too many collieries opened out for the consumption, whilst the process of developing still goes on, so that prices are not likely to go up. Steam coal does not move off very well, and considerable stocks are to be seen on the pit banks. In engine fuel, nuts, slack, and smudge there has been no change of late, whilst prices are anything but firm.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

March 28.—The slight depression existing at present in the Slate Trade is attributed by merchants to the very high prices at present prevailing. The prices have gone up in some instances 300 per cent. within 15 years. A slate merchant told me the other day that 15 years ago he sold 13×10 at 15s. per 1000. The present price is 60s. to 65s. Meanwhile the reductions in the wages of the men which took place recently at some quarries in the Nantlle Valley has not spread to other quarries. Indeed, considering the profits made by them in ordinary slate quarries, the masters need not be in a hurry to reduce the wages of the men. Arrangements are being made for the issue of a Welsh translation of Mr. D. C. Davies' book on "Slate and Slate Quarrying" (Lockwood and Co.), in accordance chiefly with the wishes and to meet the requirements of the quarrymen, who are for the most part a reading and intelligent class.

A reduction of 6d. per day has been made in the wages of the workmen in the paving sett quarries of Dendraeth, near Portmadoc. Hitherto skilled workmen in this branch of quarrying have been scarce, and wages have ruled very high in North Wales. The reduction may, therefore, be safely made, and it is needed to augment the narrow margin of profit obtained by masters, and to help them to compete with Cornish and Scotch stones.

The Limestone Trade on the Welsh coast, near Abergele, is now fairly busy. I saw on Monday a number of vessels waiting to be loaded from the Llysfaen Quarries, near Llandulas.

The Jessie, a schooner belonging to Messrs. Kneeshaw, Lupton, and Co., of Liverpool, and laden with limestone from these quarries, capsized on Friday night near the mouth of the Dee, and was found lying keel uppermost, all hands unfortunately being lost. The body of the master, Capt. Evans, has been washed ashore. It is supposed that the vessel in the darkness struck upon one of the sandbanks that abound near the estuary of the Dee.

Vice-Chancellor Bacon has been busy of late with the trial of mining actions. Last week there was the case of the Nant-y-Glo and Blaina Company against Grave, and this was followed by Hall

against the directors of the old Talagoch Lead Mining Company. Mr. Hall sought to recover the amount of money he said he had invested in the mine on the faith of statements made by the directors, which he contended were false. The Judge gave a verdict for the defendants, with costs against the plaintiff, concerning whom he expressed himself very strongly, and added that the directors (all of whom are known locally as honourable men) had not knowingly or unknowingly deceived any one by their prospectus. Let us hope that this decision will give a check to the tendency to sue directors on all manner of pretences, for it may be said, without reference to this particular case, that the men who usually originate such actions are by no means the guileless and easily duped people they assume on the trial, but are for the most part "cute" men of the world, who know full well what they are doing when they join any scheme. the plunder whereof they are usually ready to share. Still, it is a pity to see a good historic mine in the law courts and to find it saddled with an incubus of 20,000*l.*, payable to the promoters of the new company. This amount, with others, would sum up to about 40,000*l.* unproductive capital. It is a question of simple arithmetic. How much lead and zinc ore must be raised for the profits to pay a dividend of 10 or even 5 per cent. on this sum before ordinare shareholders are likely to get anything.

A new company is announced under the long name of the Derwen Deg and Pannol Gwyn Lead Mining Company. The locality of the mine is not given, but it is probably in the limestone range of Denbigh and Flint. The correspondent of a contemporary from this district rather laughs at my recent remarks about certain strata being more metal bearing than others. Ignorance often laughs, and the scoffer may live long enough to learn that my authority is not recent, and that my statements are correct.

The larger collieries about Wrexham seem fairly busy. The smaller ones succumb one after the other. The South Buckley Colliery is now altogether closed, and the sale by auction of the remaining plant of the Ifton Rhyn Colliery is announced by Messrs. Chas. Powis and Co. for April 3.

The Bersham Colliery, at which the main seam was struck at a depth of 416 yards recently, is one of the modern collieries placed on the east or deep of the coal field, and is thus another proof of the extension of the coal measures in a good condition under the Permian strata.

REPORT FROM THE FOREST OF DEAN.

March 28.—There is not the slightest improvement to report respecting the staple trades of this district, but rather the reverse, orders being very limited and employment very restricted, the colliers and iron miners being employed only upon an average from three to four days a week; in fact, nearly all the iron mines on the western side of the Forest are stopped, and colliery operations are of a very limited character. On the eastern side, too, things are at a low ebb, though not in such an absolute state of stagnation as on the western side. The late alternative put before the men of iron mines on the east side and at Cinderford furnaces of being reduced in wages or of working fewer days a week did not long remain at that, but has since been followed by intimations or notices of a 5 per cent. reduction; so that the prospects of the men are of a gloomy character, and in consequence many are talking about emigrating; but as few are eligible subjects for free passages to the colonies, few are in a position to pay their own fares, or even the assisted rates, not a very large number is likely to cross the Pacific to the southern hemisphere.

We are happy to report that the expected purchase of Parkend Tin-plate Works by Mr. Chivers of Woodfield, has been effected at a substantial price, and it is expected that the works will be started under the new auspices at an early date, possibly in the course of a few weeks from the present time. This will be a welcome circumstance to the distressed workmen and their families in the neighbourhood of Parkend, who have long suffered by the stoppage of the works. The American order spoken of in connection with the Forest Vale Ironworks has not yet been definitively settled. The firm alluded to keeps on ordering small quantities by way of samples, so that the workmen here in the Forest have begun to suspect the American firm of dodging, and have conceived the idea that it is a scheme to get cheap iron of good quality elsewhere by representing that they can can procure capital iron from England at such a price, with a view to beat down prices elsewhere. These surmises, of course, may be all wide of the mark, but it does seem strange for a firm that has confessedly had 15 or 16 different samples from works in England, Scotland, and Wales, and has repeatedly stated that the Forest production is the best, to keep on asking for fresh samples without concluding the contract. Under such circumstances it is not surprising that suspicion should be excited.

The Building Trade has scarcely any life in it this spring, so that business in building materials is in an exceedingly low condition, scarcely anything being done. And, considering the time, this is just what might be expected. The distress still continues, and in some localities is increasing, which is the case in East Dean. It does seem very strange that out of upwards of 1500*l.*, which have been collected the whole should have been spent in West Dean! It has been pointed out that only 90*l.* has been contributed at Coleford, and that Cinderford people have already equalled that sum, and are likely to do considerably more, and yet not one penny, so far, from the Treasury grant has been spent on Cinderford roads, notwithstanding that they have long been confessed the worst that exist anywhere in the district, or, perhaps, anywhere else! And yet the fund is advertised as Dean Forest Distress Fund (not West Dean Distress Fund), and the contributions have been given to Dean Forest Relief Committee, and yet that committee has totally ignored all the Forest except that part of it in West Dean! Of course it is an accident.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

March 28.—Allusion has been several times made in the columns of the Journal to the importance of the project to connect the Rhondda Valley with the town and port of Newport by direct railway communication. The Alexandra Dock (Newport) Company have warmly supported the scheme throughout, and a special meeting of the company was held to-day (Thursday) in London to authorise it to subscribe toward the project. Mr. J. C. Parkinson, managing director, presided at this and the ordinary general meeting previously held. He pointed out the importance of the scheme to the port and district of Newport, as it would open up a vast coal field that had so far been practically shut out from Newport. It would also increase the trade of the dock company. They proposed, therefore, to insert provisions in the Bill authorising a subscription from their funds not exceeding 30,000*l.* This was approved of by the shareholders. It is now said that the Rhymney Railway Company will not oppose the Bill, although it will no doubt be stoutly fought against by the Taff Vale.

The question of the Cefn-y-Wrach shoal at Cardiff, alluded to in last report, appears to have been settled for the present. The managing trustee of the Bute Docks has given instructions to have certain obstructions removed so as to restore the channel to its former dimensions, to remove a portion of the shoal and to fix buoys, marking the position of the channel. Under these circumstances the Board of Trade declines at present to interfere.

The Landore (Siemen's) Steel Company have given notice of a termination of contracts. If work be continued after the date named for terminating it will (so says the notice) be from day to day. Want of orders appear to be the reason of this step. A large portion of the men promptly offered to accept a reduction in wages, and the board, through their secretary, have recognised this kindly feeling on the part of the men. They say—"Upon entering on new contracts bear in mind the interest displayed by those who freely consented to accept a reduction." It is believed, however, that operations will not entirely cease, but that a portion only of the works will be closed. At the company's collieries at Cockett, the men have taken out their tools in consequence of some change made.

There has been some talk lately as to the probable exhaustion in some parts of the district of the Four-feet steam coal; but, on the other hand, one continually hears of new finds of coal. For instance at Harris's Navigation Colliery, Quaker's-yard, a splendid seam of the Upper coal has recently been struck, and proves well. A fine vein of fire-clay has also been discovered. The area of this coal field is about 3000 acres. Vast resources in South Wales remain undeveloped, and persons may rest assured that when the turn of the commercial tide comes it will be one of the first districts to share in the general prosperity.

Colder weather has set in, and many of the hills are covered with snow. To the many out of work this has meant an addition to their hardships. At two or three of the local iron and steel works a good amount of activity prevails, the chief of these being Ebbw Vale and Dowlais. Many ironworks, however, are very badly employed. Clearances during the week have been mainly to Sweden and South America. There are also a few colonial orders in hand. The demand for finished iron is very dull, especially for rails. Bars are chiefly made for local purposes, and the foreign demand is very limited. The Steel Trade is only moderately active, depression also characterising this branch of trade, which is gradually becoming of more importance for Wales. Steel rails are quoted but little higher than iron, taking into consideration their relative durability. There is a rumour—as yet unconfirmed—that the Gadlys Ironworks is to be transformed into a steelmaking establishment. The Tin-Plate Trade remains materially unaltered; the works generally are going full time, but prices are almost ruinously low.

Little change has also taken place in the coal trade. More regular employment is, as a rule, given to the men, and the demand is maintained up to the average, as are shipments. The output is still considerable—above the demand in fact. Steam qualities continue in fair request, but prices are not quotably unaltered. To the Mediterranean freights are firm. There is a better enquiry for house coals; but this branch of trade is quiet, as usual; and the latter portion of this remark applies to patent fuel.

Our Swansea Correspondent writes:—The trade of the port has been brisk during the past week, and the coal exports have been 2000 tons in excess of those of the previous week. Several large consignments of copper ore and regulus are to hand—190 tons and 186 casks of ore from Lisbon, for Messrs. Jose, Ford, and Co; 728 tons of regulus from Carrizal, and 750 tons of copper ore from Sestre Levanta, for Messrs. Bath and Sons; and 650 tons of regulus for Messrs. Richardson and Co. The patent fuel trade is by no means active. Tin-plate works all going full time, but prices uncertain and unsatisfactory. A presentation is to be made on Saturday to Mr. W. Williams, proprietor of the Worcester Tin-Plate Works, in recognition of the spirit of enterprise displayed by him in purchasing and setting in full work the Upper Forest Tin-Plate Works, in the present depressed state of the trade. These works were for many years carried on by Messrs. Hallam and Co., but had been closed for some time previous to Mr. Williams purchasing them.

GEOLOGICAL SOCIETY OF LONDON.

March 20.—HENRY CLIFTON SORBY, F.R.S. (President), in the chair.

J. W. Head, St. James's-terrace, Park Hill, Clapham, was elected a Fellow of the Society.——Rev. A. A. Harland, M.A., F.S.A., Harefield Vicarage, Middlesex; and T. W. Shore, Hartley Institution, Southampton, will be ballotted for as Fellows of the Society.

The following communications were read:—

1.—"On the Chronological Value of the Triassic Strata of the South-Western Counties," by W. A. E. Ussher, F.G.S.

2.—"Note on an *Os articulare*, presumably that of *Iguanodon Mantelli*," by J. W. Hulke, F.R.S., F.G.S.

3.—"Description of a new Fish from the Lower Chalk of Dover," by E. Talley Newton, F.G.S.

4.—"Further remarks on adherent Carboniferous Productidæ," by R. Etheridge, jun., F.G.S.

5.—"The Submarine Forest at the Alt Mouth," by T. Mellard Reade, F.G.S.

DIRECT-ACTING OR NON-ROTATIVE PUMPING-ENGINES AND PUMPS.

At the Institution of Civil Engineers, on Tuesday, a paper was read by Mr. HENRY DAVEY, Assoc. Inst. C.E., in which he discussed some new forms of direct-acting pumping-engines and pumps, as a question of relative cost and efficiency, illustrating his arguments by practical examples. The direct-acting engine had a wider sphere of application in mining operations than elsewhere, and experience had proved it to be the best type for deep mine and heavy pumping. Until lately the Cornish had been the only direct-acting expansive engine. It was a very economical machine under favourable circumstances, but its range of expansive working was limited. Compound rotative engines had been made to do a higher duty than Cornish engines. In the early days of pumping, Hornblower, Trevethick, Woolf, and Sims experimented with compound Cornish engines in Cornwall; but these attempts had failed because the engines were single acting, and the distribution of steam was such as to lead to great thermal loss from the cooling influence of the condenser. From these and other practical defects the engines fell into disuse. To work direct-acting engines expansively certain conditions were necessary. An inert mass must be provided, which by its inertia at the beginnning and momentum towards the end of the stroke should compensate for the diminishing pressure of the expanding steam employed in overcoming the almost uniform resistance of the pump. In single cylinder engines this involved heavy initial strains, considereble piston speeds, and a large inert mass to render a high degree of expansion possible. These obstacles were removed in the direct double-acting compound engine. This part of the subject was graphically illustrated by indicator and velocity diagrams, taken from compound and Cornish engines under various conditions of working, the results being tabulated. The relative cost of compound and of Cornish engines was next compared, and it was shown that the cost of the engine and buildings was less for the compound than for the Cornish engine. The author then described certain improvements in valve gears, and discussed the construction of pumps and pump valves, advocating much heavier lifts than those commonly used. As examples, a 200-house power compound engine, employed underground, in forcing against a column 1100 ft. in height, and a 600 horse power compound engine, actuating two 20 in. plungers by spears, against a column of 700 ft., were referred to. An improved form of pump work was adopted to render such heavy lifts practicable and safe: 20 varieties of pump valves were illustrated, and diagrams of the lift of pump valves, and others showing the shocks produced in the opening and closing of valves, were exhibited. In an addendum the author touched briefly on three questions of special interest in connection with the subject of the paper. These related to the economical use of steam, in regard to the degree of expansion, as to how greater economy might be secured, and as to the condition of maximum efficiency.

Original Correspondence.

WHEAL UNY, AND ITS MANAGEMENT.

SIR,—In reply to a letter in last week's Journal from Mr. J. Tressider (a holder of five shares) relative to Wheal Uny and its management, I beg to say in the first place that I did not refuse to give him the name of any shareholder, but on the contrary, handed to him for inspection the list of the whole of the proprietors; in the second place, his assertion that there are forfeited shares belonging to the company I am in a position to positively contradict. Other parts of his letter concerning the local management our manager will probably answer.—*March* 29. J. HICKEY.

MEXICO, AND ITS MINERAL RESOURCES.

SIR,—The past and recent explorations of the mineral wealth of Mexico show its great value in almost every species of metalliferous and carboniferous elements. It appears to be exceedingly rich in coal and fire-clay; but of all the promising results perhaps the most decisive and anticipatory is gold, of which rich deposits have been developed. Further, whilst the samples reaching this country are distinguished by their almost unique richness, no doubt can exist of its abundance, Nodules have been exhibited by the New Zealand Gold Mining Company here which prove the correctness of my statement. Exceptional nuggets yield the precious metal in its purity, whilst large boulders subjected to the ordinary modes of assaying have yielded from 10 dwts. or 12 dwts. to 4 ozs. of gold per ton.

Taken promiscuously from a large heap, I have developed in the one case 19 dwts. 14 grs., and in the other 3 ozs. 14 dwts. 20 grs. per ton. In neither instance was there the slightest external indications of gold being present. In so far as it is safe to judge from the analyses made upon the mass, it may be justly inferred that the gross yield will not fall short of ½ oz. per ton. Now, if we suppose—and the supposition is not by any means an extravagant one—that the reef through the hill where it is deposited extends continuously to the depth to which it has been traced down each slope, then for every foot in thickness of quartz there will occur in this property alone about 10,000 tons available for exploration and harvesting. Hence the company have the prospect to encourage them in the pursuit of their engagement, and a splendid promise of safe investment for capital expended. W. WHITE.

Laboratory and Assay Office, 3, West street, Finsbury-circus.

THE WEEK.

SATURDAY, MARCH 23.—The markets opened flat, and closed very little above the worst. Dover, A, Brighton, A, Chatham Preference, and Caledonian, where the "bull" account is greater, suffering the most. Foreign bonds were comparatively steady. Dover, A, fell 1¾; to 120¼, and the others lost from 1 to 1¼. It is to be feared that the transfer of Willis, Percival, and Co. to the North Wilts Banking Company, whereby 10s. in *li.* would have been secured to their creditors, will not be carried through, as the clearing bankers decline to admit the latter company into the clearing-house. Admission was previously refused to the Central Bank. The clearing-house is a small ill-lighted ground floor in the narrow alley that gives the Post Office access to Lombard-street and King William-street, and no doubt it is true that there is far too little space for existing members. The very excellent report from the Pandora Mine led to some enquiries for the shares.

MONDAY.—Good traffic returns were again issued by the Brighton and South-Eastern Railway Companies, and but for the change in the tone of the markets probably the former might have touched 127, and the other 123, as was confidently asserted in numerous quarters last week. After a strong effort made to sustain prices both stocks fell sharply, and closed at the lowest, Brighton, A, being then 124, and Dover, A, 119½. Great Eastern declined to 47½, Caledonian to 118½, and Great Western to 97¾. Egyptian Preference, 54 to 54¼; ditto, Unified, 29¼ to 29¾; Russian, 1873, 82½ to 82¾; Turkish Fives, 8 1-16th to 8 3-16ths. The market for East Van shares was a dull one, a few transactions took place at 5¼, but towards the close shares could be had at 5. Alamillos was dealt in at 1¾, Fortuna at 4¼, and Plumas Eureka at 2¾. Tharsis Copper, 23 to 23½; National Safe, 3¾ to 3¾; Limmer Asphalte, 2 to 2¼.

TUESDAY.—A slight improvement was shown in home railways, but it was not of any important character, great eagerness being shown to close whenever a small profit could be had. The rise was most apparent in Brighton, A, Dover, A, Metropolitan District, and Caledonian. Great Eastern and Metropolitan were neglected, though in the opinion of several these two stocks are likely to see an improvement. Tankerville shares were dealt in at 3¾, the rise being still maintained. It is to be hoped that this mine's prospects will shortly improve. West Chiverton rose to 12½, 13½, being a change of 1½ on the day. East Van were unchanged at 4¾ to 5¼.

WEDNESDAY.—There was a large demand for shares in D'Eresby Mountain, but very few could be had as holders will not sell. The very decided opinion recently expressed by one of the first authorities on mining has not passed unheeded by those who only care to speculate on certainties. The shares were to-day quoted 65 to 70, and it is not considered that the rise will be exhausted when 100 is reached. Signs are not wanting of an impending rise in D'Eresby Consols, which has been described as of equal promise. This was the first settling day, and the making up prices showed that Chatham Pref. and Dover A had lost ground during the account. Brighton A was continued the same (124¼). Russian receded from 84¼ to 83¼. The change in East Van was from 2¾ to 5.

THURSDAY.—D'Eresby Mountain shares rose a further 5*l.*, to 70*l.*, 80*l.* A most influential body of shareholders attended the first general meeting to-day, and cordially endorsed the statement in the report that the directors have "to congratulate the shareholders upon having one of the most promising mines in Wales." The mine is a series of five adits driven into a hill, where they intersect well-known rich lodes, and the directors hope in a few months to be making good and profitable returns. Great as are the present prospects, the agents add that from what they have already seen in No. 5 level they should not be surprised if they have a course of lead there superior to anything yet seen in the mine The Bank of England directors raised the rate to 3 per cent. The railway and foreign departments were flat all day.

FRIDAY (*Opening*).—The resignation of Lord Derby, often falsely reported, has at length taken place unexpectedly. The greatest confusion prevails, intensified by its being pay-day, and by the inclement state of the weather. Russian, 1873, have fallen from 80 to 76½. Consols are 94½; new, 93½; Egyptian Preference, 53¼; Brighton, A, 122; Dover, A, 118¾; Caledonian, 114½, ex div.; Great Laxey, 19½ to 20½; Leadhills, 3⅝ to 3¾; Llanrwst, 1¾ to 2¼; Wye Valley, 1½ to 2; West Wye Valley, 3¼ to 3¾.——*Twelve o'clock.*—Paris prices having come in flat, Russian, 1873, have fallen straight away to 74½. Egyptian Preference have receded to 32. In railways, Brighton, A, have dropped to 121.——*Two o'clock.*—The most that can be said is that, on the whole, the markets are not actually worse. Consols, 94⅜ to 94½; new, 93¼ to 93½; Caledonian, 114½ to 114⅝, ex div.; Brighton, A, 121¼ to 121½; Dover, A, 117½ to 117¾; Russian, 75⅛; Hultafall, 4 to 4½; Kapanga, ½ to ¾; Don Pedro, ½ to ⅝. Business has been "marked" in Port Phillip at 13s. 9d.——*Quarter-past Four o'clock.*—Ten minutes ago Russian, 1873, were offered at 74½, now they are 75½, buyers, and there is a slight recovery from the lowest in most railways, the Chancellor of the Exchequer having this afternoon stated that there is no immediate hurry for the calling out of the Reserve. East Van are dull, at 4½. Buyers offer 70 for D'Eresby Mountain. D'Eresby Consols, 10 to 12¼; Chapel House, 3 to 3¼; Newport Abercorn, 4 to 4¼.

FERDINAND R. KIRK

EAST CARADON.—The sinking of Williams' shaft is progressing satisfactorily, but the boring machine is wanted here. It is reported, however, that the ground is much changed, and good results are anticipated. The working cost, compared to most other mines, is very trifling, and the ore found is rich. A little improvement would soon send up the price of these shares, as the lodes are dipping into South Caradon. The adventurers in the latter mine are in treaty with the lords for an extension of their sett in the eastern part of the mine, and the eastern drivages of South Caradon, on the course of Childs' lode, continue to open up very profitable ground.

CORNISH MINERS FOR BOHEMIA.—Among the passengers who embarked at Plymouth in the Hamburg-American Packet Company's steamship Herder, for the continent, were Capt. James, from Redruth, and 18 young miners en route to work in a tin mine in Bohemia. The men are well provided with clothing and tools.

LEAD ORES.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
March 26	Isle of Man	105	£19 12 0	Quirk, Barton, and Co.
28	Great Dyliffe	40	10 15 0	George Burr.
—	Tankerville	100	11 11 0	ditto
—	Rookhope	50	10 16 0	Jacob Walton and Co.
29	Kingston Consols..	15	14 0 6	Nevill, Druce, and Co.
—	ditto	5	8 0 6	ditto

BLENDE.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
March 25	Pandora	30	£ 2 2 6	Richardson and Co.
29	Kingston Consols..	20	2 12 6	Vivian and Sons.

BLACK TIN.

Date.	Mines.	Tons c. q. lb.	Price per ton.	Amount.	Purchasers.
March 25	West Godolphin	20 1 3 5	£36 7 6	£730 15 6	Bolitho.

COPPER ORES.

Sampled March 6, and sold at the Royal Hotel, Truro, March 21.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
Devon Great Consols	93	£1 11 0	Marke Valley	64	£2 4 6
ditto	86	1 9 6	ditto	62	2 17 6
ditto	84	1 8 6	ditto	61	3 15 0
ditto	76	1 7 0	ditto	59	1 18 6
ditto	75	1 8 6	ditto	48	3 11 6
ditto	72	4 6 0	ditto	46	1 8 6
ditto	71	1 12 0	Gunnislake (Clitters)	97	3 4 0
ditto	68	1 9 6	ditto	87	3 12 0
ditto	62	4 10 6	ditto	76	3 8 6
ditto	56	1 7 0	ditto	68	4 6 0
ditto	48	1 8 0	Glasgow Caradon	79	2 7 6
ditto	43	3 16 0	ditto	68	1 14 6
ditto	22	4 7 0	ditto	63	2 18 0
South Caradon	93	2 17 6	Hingston Down	70	1 13 6
ditto	92	2 18 6	ditto	68	2 3 0
ditto	80	3 2 6	ditto	33	1 10 6
ditto	55	3 16 6	Bedford United	70	2 18 6
ditto	52	10 1 0	ditto	55	3 0 6
ditto	50	5 10 6	East Caradon	50	4 3 6
ditto	48	10 5 0	Davey's Ore	5	4 4 0

TOTAL PRODUCE.

Devon Great Con.	856	£1806 2 6	Hingston Down	171	£ 313 15 6
South Caradon	470	2287 14 0	Bedford United	125	371 2 6
Marke Valley	340	900 2 6	East Caradon	50	208 15 0
Gunnislake (Clit.)	328	1176 6 0	Davey's Ore	5	21 2 6
Glasgow Caradon	210	487 12 6			

Average standard ..... £ 93 4 0 | Average produce 6¼
Average price per ton £2 19 6
Quantity of ore ..... 2555 | Quantity of fine copper 156 tons 13 cwts
Amount of money £7572 13 0
LAST SALE.—Average standard ..... £ 87 5 0 | Average produce 8
Standard of corresponding sale last month, £ 97 8 0—Produce, 6½

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Names.	Tons.	Amount.
Vivian and Sons	626½	£2614 5 2
Nevill, Druce, and Co	366½	1543 2 8
Williams, Foster, and Co.	901½	2263 7 2
Mason and Elkington	326½	748 12 0
Charles Lambert and Co.	136	403 6 0
Total	2555	£7572 13 0

NO SALE on Thursday last, March 28.

Copper ores for sale at Tabb's Hotel, Redruth, on Thursday next—Mines and parcels.—West Tolgus 390—Mellanear 380—West Seton 224—East Pool 136—South Crofty 118—Crinnis and Carlyon Consolidated 81—Carn Brea 53—Wheal Basset 47—New Cook's Kitchen 36—Penstruthal 26—West Godolphin 24—South Condurrow 23—North Treskerby 22—South Tolcarne 7—Wheal Seton 3—Williams's Precipitate 1.—Total, 1566 tons.

RHENISH AND WESTPHALIAN PROVINCES, PRUSSIA.

PREMIUM OF 3000 MARKS, OR £150, FOR BEST ESSAY ON MANUFACTURE OF PATENT FUEL OUT OF WESTPHALIAN COAL.

THE ASSOCIATION OF MINES of the DORTMUND MINING DISTRICT decided, at their General Meeting of 22nd December, 1877, to GIVE a PREMIUM of 3000 MARKS = £150 for the BEST ESSAY as to the MOST SUITABLE MODE—Chemically, Technically, and Economically—of MANUFACTURING PATENT FUEL OUT OF THE WESTPHALIAN COAL.

The Premium is offered subject to the following conditions:—

1.—Competitors are to send in their Essays to the undersigned Secretary of the Association on or before the 1st October, 1878, inscribed with a motto the same as that upon a sealed letter, to accompany it, containing the name and address of the author.

2.—The Essay may be written in the German, English, or French languages.

3.—The assignment of the Prize is to be decided upon by the Board of the Association according to the report on the competing Essays by authorities to be selected by the Board. The announcement of the winning author will be made at the General Annual Meeting of 1878.

4.—The Prize Essay to become the property of the Association, which alone shall decide as to the publication and application of the same.

DR. NATORP,

Geschäftsführer des Vereins für die bergbaulichen Interrssen im Oberbergamtsbezirk Dortmund,

ESSEN, RHENISH PROVINCE, PRUSSIA.

TO JOINT-STOCK COMPANIES.

RETURNS AND NOTICES REQUIRED TO BE FILED AT THE OFFICE OF THE REGISTRAR OF JOINT-STOCK COMPANIES,

Under the Companies Acts, 1862 and 1867.

THE BOARD OF TRADE hereby give notice that it has been DETERMINED to ENFORCE the PUNCTUAL FILING of RETURNS and NOTICES, required to be rendered to the Registrar of Joint-Stock Companies, under the various sections of the above Acts of Parliament; and to PROCEED for the RECOVERY of PENALTIES incurred in cases of neglect to comply with the provisions of the law.

The Registrar has been instructed to prepare a List of Companies in default, in order that proceedings may be instituted against such companies, if the returns in arrear are not forthwith sent in to the Assistant Registrar, at his office, Truro.

Dated January 26, 1878.

LOSSIEMOUTH LEAD MINE, COUNTY OF ELGIN, N.B.

Full particulars, including copies of the reports made by the several engineers who have inspected the property, may be obtained, and samples of the ore seen, at

No. 66, ST. CLEMENT'S HOUSE, CLEMENT'S LANE, LONDON, E.C.

THE VAN MINING COMPANY (LIMITED).

Notice is hereby given, that the directors have THIS DAY DECLARED an INTERIM DIVIDEND of £5625, being SEVEN SHILLINGS AND SIXPENCE PER SHARE on the 15,000 shares in this company, PAYABLE on and after the 12th day of April next.

The Transfer Books will be closed from the 5th to the 12th proximo, both days inclusive. By Order, W. J. LAVINGTON, Secretary.

14A, Austinfriars, London, E.C., March 30th, 1878.

THE LUSITANIAN MINING COMPANY (LIMITED).

Notice is hereby given, that the ORDINARY GENERAL MEETING of this company will be HELD at this office, on THURSDAY, the 11th day of April next, at Three o'clock in the afternoon, to receive the reports and accounts for the year ending 30th September, 1877, and for general purposes.

At this meeting two directors—Robert Henty, Esq., and John Phillips Judd, Esq.—will retire from office by rotation, but are eligible, and offer themselves for re-election.

One of the auditors—William Francis, Esq.—will also go out of office at this meeting, but is eligible, and offers himself for re-election.

By order of the Board, W. G. WILLIAMS, Secretary.

6, Queen-street-place, London, E.C., 29th March, 1878.

THE BRAZILIAN COMPANY

(Late of No. 9, Liverpool-street, London, London, E.C,

HOLDERS OF SHARES in this (extinct) COMPANY, their EXECUTORS or ADMINISTRATORS will BENEFIT THEMSELVES by SENDING PARTICULARS OF THEIR HOLDINGS to "W. H. C.," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

Name in full .....
Address .....
Number, ; numbers, ; and amount paid upon shares
Date of last communication from directors of the company.....

WANTED, OLD WIRE ROPES, in LARGE or SMALL LOTS.

State quantity and price, done up in coils, to—

MESSRS. ATKEY AND CO., 33, CORNHILL, LONDON.

MR. WILLIAM SALMON, F.G.S., 22, QUEEN STREET, ULVERSTON,

MINING AND COMMISSION AGENT AND ACCOUNTANT.

SEVERAL VALUABLE IRON ORE, SLATE and LEAD ROYALTIES, TO DISPOSE OF.

MR. HENRY SEWELL, MINING ENGINEER AND METALLURGIST.

Twenty-three years' practical experience in Chile, Peru, Mexico, Germany, Hungary, Spain, Sicily, England—five years in Utah, Nevada, and California.

SPECIALITIES.—COPPER MINING: The Smelting of Copper and Argentiferous Copper Ores, with wood fuel or coal in reverberatory furnaces, into matte of 70 per cent., the silver increasing five times. Ten years' practical experience in Chile.—The Reduction of Native Sulphur Ores, as practiced in Sicily, without fuel or iron pans. Six years' practical experience in Spain.

Mining Agent for the Chilian Government on this coast.

330, PINE STREET, SAN FRANCISCO (ROOM 4).

MR. TIMOTHY HUGHES, MINING AGENT AND SHAREDEALER,

59, SEEL STREET, LIVERPOOL.

Reliable information given respecting Welsh and Manx Mines.

PRINCE PATRICK MINE.

New Issue of 12,000 Preference Shares.

T. H. strongly recommends his friends and the public to secure an interest at once in this very valuable mine while the shares can be obtained under such favourable circumstances.

See report in Supplement to *Mining Journal*, March 9th, also advertisement in Journal of March 16th.

EMMENS AND CO. (LIMITED),

MINING ENGINEERS AND MANUFACTURING CHEMISTS.

CHIEF OFFICE.

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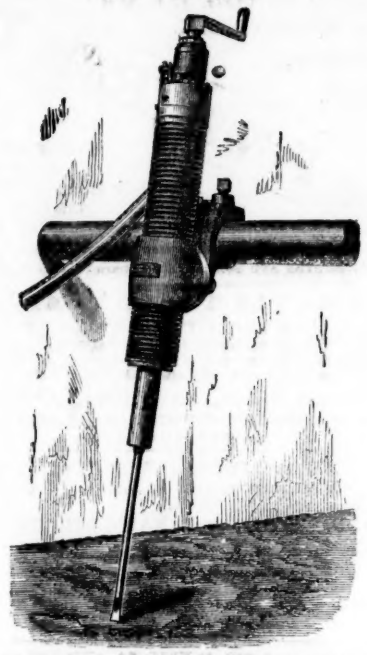

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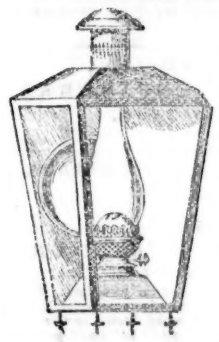

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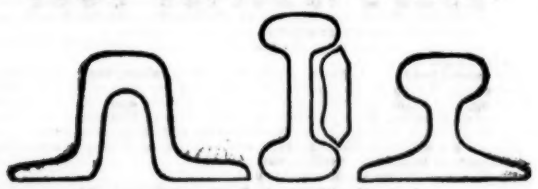

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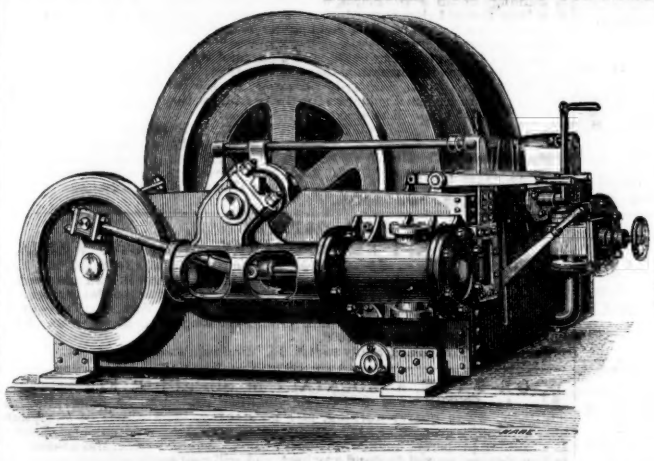

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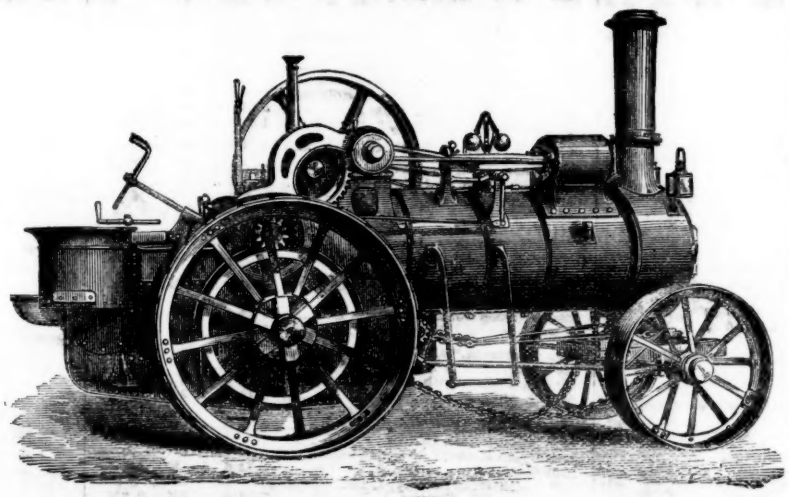

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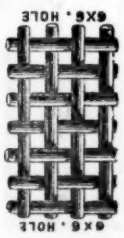

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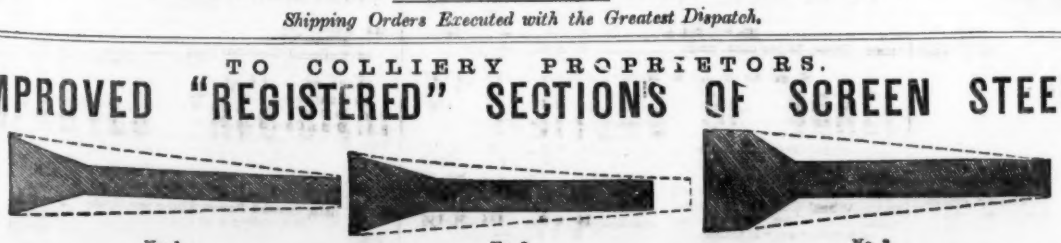

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THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.

Shares	Mines.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
1500	Alderley Edge, c, Cheshire*	10 0 0	—		12 11 8	0 5 0	Jan. 1876
4000	Brookwood, c, Buckfastleigh	1 16 0	1	½ 1	3 16 0	0 2 0	Nov. 1875
2000	Bryn Alyn,* l, Denbigh	10 0 0	—		0 7 0	0 7 0	Jan. 1877
5400	Cashwell, l, Cumberland*	2 10 0	2¼	1 1½	1 9 6	0 2 0	Aug. 1876
1000	Carn Brea, c, t, Illogan†§	36 7 6	45	42½ 45	308 0 0	1 0 0	Feb. 1874
2450	Cook's Kitchen, t, Illogan†§	24 4 9	3	2½ 3	11 17 0	0 7 6	Jan. 1873
10240	Devon Gt. Consols, c, Tavistock†*	1 0 0	3¼	2¾ 3¼	116 15 0	0 5 0	July 1877
4296	Dolcoath, c, t, Camborne	10 14 10	33	31 33	112 6 3	0 5 0	Mar. 1878
5000	East Black Craig,* l., Scotland	5 0 0	—		0 10 0	0 10 0	Feb. 1877
?00	East Darren, l, Cardiganshire	32 0 0	—		235 10 0	1 0 0	Aug. 1876
6400	East Pool, t, c, Illogan	0 9 9	9	8½ 9	15 6 9	0 2 0	Feb. 1878
40000	Glasgow Cara., c* [30,000 £1 p., 10,000 15s. p.]		1⅜	1¼ 1⅜	0 13 4	0 0 6	Feb. 1878
7500	Gorsedd and Merllyn Cons., l, Flint	2 10 0	5	4½ 5	0 5 0	0 5 0	Aug. 1877
15000	Great Dyliffe,* l, Montgom	4 0 0	3	2 3	0 2 6	0 2 6	Apr. 1876
15000	Great Laxey, l, Isle of Man*	4 0 0	20½	19½ 20½	23 3 0	0 10 0	Jan. 1878
615	Gt. Retallack, l, bl, Perranzabuloe	5 18 6	—		0 1 6	0 1 6	May 1876
6400	Green Hurth, l, Durham*	0 6 0	1½	1¼ 1¾	1 18 0	0 3 0	Mar. 1878
20000	Grogwinion, l, Cardigan*	2 0 0	3¾	3½ 4	0 14 0	0 2 0	Jan. 1878
9830	Gunnislake (Clitters), t, c	5 5 0	2¾	2½ 2¾	0 13 9	0 1 0	Oct. 1876
60000	Holmbush, a, c, s-l, Callington*	1 0 0	1¾	1½ 1¾	0 4 6	0 0 6	Sept. 1877
2800	Isle of Man, l, Isle of Man*†	25 0 0	—		82 5 0	0 10 0	Feb. 1876
20000	Leadhills,* l, Lanarkshire	6 0 0	4	3⅝ 3⅞	0 12 0	0 6 0	Oct. 1877
400	Lisburne, l, Cardiganshire	18 15 0	75	65 75	585 10 0	1 0 0	Feb. 1878
14000	Llanidloes,* l, Montgomery	3 0 0	1¼	¾ 1¼	0 9 0	0 4 6	Nov. 1876
9000	Marke Valley, c, Linkinhorne	5 3 6	¾	⅝ ¾	7 15 0	0 2 0	Jan. 1876
10000	Mellanear Copper, Hayle*	2 0 0	4¼	3¾ 4¼	0 2 0	0 2 0	Jan. 1878
9000	Minera Mining Co., l, Wrexham*	5 0 0	12	10 12	67 10 8	0 2 6	Feb. 1878
20000	Mining Co. of Ireland, cl, c, l*	7 0 0	—		23 17 6	0 2 6	Jan. 1878
444	North Busy, c, Chacewater	3 9 6	5	4 5	1 10 0	1 0 0	July 1877
10289	North Hendre, l, Wales	2 10 0	—		1 12 6	0 2 6	Aug. 1877
30000	Panty Mwyn,* l, Mold (8794 iss.)	2 0 0	3	2½ 3	0 1 0	0 1 0	Feb. 1878
6000	Pedn-an-drea Con., t, Redruth	0 8 6	6¾	6¼ 6¾	0 9 0	0 9 0	June 1877
5000	Penhalls, t, St. Agnes	3 2 6	1	¾ 1	3 13 6	0 2 0	July 1875
6000	Pennant, l, bar, North Wales*	5 0 0	5	4½ 5	0 5 0	0 5 0	Mar. 1877
45793	Penstruthal,* t, c, Gwennap	2 0 0	6s.	4s. 5s.	0 2 8	0 0 8	Nov. 1875
18000	Prince Patrick,* s-l, Holywell	1 0 0	2¼	1¾ 2¼	0 14 0	0 1 3	Jan. 1876
10000	Red Rock,* l, Cardigan	2 0 0	2½	2 2½	0 4 0	0 2 0	Jan. 1878
12000	Roman Gravels, l, Salop*	7 10 0	8½	8¼ 8¾	7 10 9	0 8 6	May 1877
512	South Caradon, c, St. Cleer	1 5 0	85	80 85	742 10 0	1 0 0	Mar. 1878
6123	South Condurrow, t, c, Camborne‡	6 5 6	11½	11 11½	3 5 0	0 7 0	Jan. 1878
12000	St. Harmon,* l, Montgom	3 0 0	4	2 3	0 6 0	0 3 0	July 1877
10000	So. Pr. Patrick,* s-l. (8000 sh. issued)	1 0 0	—		0 7 0	0 1 0	Oct. 1875
12000	Tankerville, l, Salop*	6 0 0	3¼	3¼ 4	4 17 0	0 5 0	Dec. 1876
6000	Tincroft, c, t, Pool, Illogan†	9 0 0	12	11½ 12½	50 8 6	0 5 0	May 1877
15000	Van, l, Llanidloes*	4 5 0	26	24 26	22 15 6	0 12 0	Jan. 1878
3000	W. Chiverton, l, Perranzabuloe†	12 10 0	14½	13 14	55 10 0	0 10 0	Feb. 1878
1783	West Poldice, St. Day	10 0 0	15	13 15	1 19 0	0 4 0	July 1876
512	West Tolgus, c, Redruth	95 10 0	73	76 77½	26 15 0	1 10 0	Feb. 1878
2048	West Wheal Frances, t, Illogan	28 1 3	3½	3 3½	3 12 6	0 5 0	Oct. 1872
12000	West WyeValley,* l, Montgom	3 0 0	3¼	3¼ 3¾	0 12 0	0 3 0	Nov. 1877
1024	Wh. Eliza Consols t, St. Austell	18 0 0	—		15 10 0	1 10 0	Oct. 1877
2048	Wheal Jane, t, Kea	2 13 10	1	¾ 1	8 5 0	0 5 0	July 1875
4295	Wheal Kitty, t, St. Agnes	5 4 6	2¼	1¾ 2¼	11 19 6	0 2 6	Dec. 1874
25000	Wh. Newton, a, c, s, t, Calstock*	1 0 0	5½	5 5½	0 8 6	0 4 0	Sept. 1877
80	Wheal Owles, t, St. Just§	98 15 0	100	90 100	522 10 0	4 0 0	Aug. 1872
6000	Wheal Prussia, t, Redruth	0 5 0	7½	7 7½	0 4 0	0 1 0	July 1877
10000	Wye Valley, l, Montgomery*	3 0 0	2¼	1¾ 2¼	0 10 6	0 4 6	Oct. 1876

FOREIGN DIVIDEND MINES.

Shares	Mines.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
5500	Alamillos, l, Spain*†	2 0 0	2	1½ 1¾	1 19 3	0 1 0	April 1878
30000	Almada and Tirito Consol., s*†	1 0 0	½	¼ ½	0 6 3	0 1 0	May 1876
20000	Australian, c, South Australia†	7 7 6	2¼	1½ 2	0 19 6	0 1 6	July 1877
10000	Battle Mountain,* c, (6240 part pd.)	5 0 0	—		0 10 0	0 10 0	Nov. 1872
15000	Birdseye Creek, g, California*	4 0 0	1	¾ 1	0 14 0	0 2 6	June 1874
20000	Cape Copper Mining,*† So. Africa	7 0 0	32	29 31	30 10 0	0 17 6	Mar. 1878
34433	Cedar Creek, g, California*	5 0 0	⅜	⅛ ⅜	0 5 0	0 2 6	June 1873
35000	Cesena Sul. Co., Romanga, Italy*	10 0 0	—		0 10 6	0 3 0	Aug. 1877
15000	Chicago, s, Utah*	10 0 0	1½	1 1½	2 8 0	0 4 0	Nov. 1876
65000	Colorado United, s-l, Colorado*†	5 0 0	1¾	1¼ 1¾	0 13 6	0 4 0	Jan. 1875
10000	Copiapo, c, Chili* (£20 shares)	16 15 0	—		7 11 5	0 3 0	May 1877
00000	Don Pedro North del Rey*†	0 16 0	⅜	⅛ ⅜	2 5 9	0 2 0	Mar. 1872
23500	Eberhardt & Aurora, s, Nevada*†	10 0 0	6½	5¾ 6¼	1 8 0	0 3 0	Dec. 1877
70000	English & Australian, c† S. Aust.	2 10 0	1¼	1 1¼	2 15 9	0 1 0	Mar. 1877
30000	Flagstaff, s, Utah*	10 0 0	¾	½ ⅝	4 2 0	0 5 0	July 1873
25000	Fortuna, l, Spain*†	2 0 0	5¼	4¾ 5¼	6 19 10	0 5 0	April 1878
55000	Frontino & Bolivia, g, New Gran.*†	2 0 0	2¼	1½ 2	0 1 0	0 1 0	June 1876
30000	Gold Run, hyd.	1 0 0	—		0 2 4	0 0 4	Oct. 1872
68000	Kapunda Mining Co. Australia†	1 3 0	—		0 2 4	0 0 6	June 1873
20000	Last Chance, s,* Utah	5 0 0	⅞	⅝ ⅞	0 14 0	0 2 0	July 1873
15000	Linares, l, Spain*†	3 0 0	6½	5¾ 6¼	17 7 10	0 5 0	April 1878
65000	London and California, g*†	2 0 0	⅜	⅛ ⅜	0 1 0	0 1 0	July 1875
7837	Lusitanian, Portugal*† (£5 sh.)	3 10 0	—		1 11 6	0 1 6	Mar. 1873
5000	Mamm. Copperopolis of Utah, c, s	10 0 0	—		0 5 0	0 5 0	Dec. 1872
5000	Mountain Chief, s, Utah*	10 0 0	—		0 4 0	0 4 0	Jan. 1873
10000	Pontgibaud, s-l, France†	20 0 0	30	29 31	25 8 0	1 11 0	Nov. 1877
00000	Port Phillip, g, Clunes*†	1 0 0	¾	⅝ ¾	1 10 0	0 1 0	Jan. 1878
54000	Richmond Consols, s, Nevada*†	5 0 0	10	9½ 10	4 4 0	0 7 6	Feb. 1878
40000	Santa Barbara,* g, Brazil	0 10 0	1½	1 1½	0 3 9	0 1 3	May 1877
120000	Scottish Australian Mining Co.*†	1 0 0	1¾	1½ 1¾	15 per cent.		Nov. 1877
60000	Scottish Austral. Mining Co., New	0 10 0	⅞	¾ ⅞	15 per cent.		Nov. 1877
112500	Sierra Buttes, g, California*†	2 0 0	1⅝	1¼ 1⅝	1 18 0	0 2 0	Oct. 1877
60000	South Aurora, s, Nevada*	5 0 0	¼	⅛ ¼	0 14 2	0 2 0	Nov. 1873
£253000	St. John del Rey*† (£5 stock & multiples dealt in)			300 310	⅛ year	20 p. ct. for Dec.	1876
20000	Tolima, g, s* So. America	5 0 0	—		0 11 6	0 6 6	May 1874
25000	Victoria (London)*, g, Australia	1 0 0	¾	⅝ ¾	0 12 6	0 0 7½	Jan. 1878
15000	Western Andes, s,* New Granada	5 0 0	—		0 12 0	0 12 0	July 1876
21000	W. Prussian (5500 pref. sh. 10l. pd)	10 0 0	11¼	10¾ 11¼	1 8 0	0 4 0	Jan. 1878

NON-DIVIDEND FOREIGN MINES.

Shares.	Mines.	Paid.	Last Pr.	Clos. Pr.	Last Call.
5000	Anguilla Phosphate, West Indies (4000 issued)	10 0 0	—		Fully pd.
12000	Argentine, g, Argentine Republic	5 0 0	—	½ 1⅛	Fully pd.
3000	Bellavista, s, Peru* (£10 shares)	10 0 0	—		Fully pd
30000	Blue Tent, hyd., California	5 0 0	3	2 3	Fully pd.
49935	Chontales, g, s, Nicaragua*†	2 0 0	¾	⅝ ¾	Fully pd.
16000	Condes of Chili, s-l	5 0 0	—		Fully pd.
20000	English Australian, g, Victoria*	1 0 0	⅞	⅝ ⅞	Fully pd.
35000	Excelsior Hydraulic Gold Washing Co., California*	6 0 0	—		Dec. 1871
100000	Exchequer, g, s, California*†	1 0 0	3s.	⅛	Fully pd.
40000	Holcombe Valley, g,* California	1 0 0	—		Fully pd.
8000	Hornachos,* s-l, Spain	10 0 0	13	12½ 13	Fully pd.
12000	Hultafall,* l, bl, Orebro, Sweden	5 0 0	—		Fully pd.
12000	Hunter Consolidated, s-l, Utah	10 0 0	—		Fully pd.
20000	Imperial Brazilian Collieries, Brazil*	5 0 0	—		Fully pd.
00000	I. X. L., g, s, California*	1 0 0	2s.		Fully pd.
50000	Javali, g, Nicaragua*	2 0 0	⅜	¼ ⅜	Fully pd.
3500	La Manche, l, Newfoundland	10 0 0	—		Fully pd.
12000	Lanestosa,* l, s, Viscaya, Spain (£2 shares)	1 15 0	—		Mar. 1876
75000	Malabar, g, Colombia* (67165 issued)	1 0 0	¼	⅛ ¼	Fully pd.
40000	Malpaso, g, Colombia* (7400 pref. shares, fully paid)	1 0 0	½	¼ ½	Fully pd.
12000	Menzenberg, c, Honnef, Germany*	5 5 0	—		Fully pd.
4588	New Bensberg, i, l, Germany	5 0 0	—		Nov. 1876
66000	New Quebrada, c, Venezuela*	5 0 0	2	1⅛ 1⅜	Fully pd.
20000	New Zealand Kapanga, g, Coromandel*	5 0 0	¾	½ ¾	Fully pd.
3000	Oregon,* g, Oregon, U.S. (preference shares)	4 0 0	—		Fully pd.
50000	Panulcillo, c, Chili*† (£80000 debentures)	4 0 0	1⅛	1 1⅛	Fully pd.
80000	Pestarena United, g, Italy*†	3 0 0	⅜	¼ ⅜	Fully pd.
50000	Providencia and New Rosario, s, Mexico*	1 0 0	—		Fully pd.
60000	Rica, g, Colombia* (40000 issued)	1 0 0	¼	⅛ ¼	Fully pd.
£2,181,000	Rio Tinto,* c, Huelva, Spain	Stock	57	54 56	Fully pd.
100000	Rossa Grande, g, Brazil*† (£1 shares)	0 19 0	⅛	⅛	July 1872
30000	Russia Copper, Orenburg and Ufa*†	10 0 0	1⅛	1¼ 1½	Fully pd.
25000	San Pedro, c, Chili*	2 0 0	½	¼ ½	Fully pd
10000	Silver Plume, s, Colorado*	1 0 0	—		Fully pd
30000	Tecoma, s, Utah*	10 0 0	⅝	⅜ ⅝	Fully pd.
43174	United Mexican, s, Mexico*†‡	28 15 3	2¼	1¾ 2¼	May 1875
14000	Utah, g, s-l, Utah*	5 0 0	—		Fully pd.
25000	Virneberg, c Rheinbreitbach, Germany* (£2 shares)	1 15 0	—		Jan. 1878
75000	Yorke Peninsula, c, South Australia	1 0 0	½	¼ ½	Fully pd.
40000	Yorke Peninsula, s, South Australia Preference	1 0 0	1	¾ 1	Fully pd.

§ Have made calls since last dividend was paid.

FOREIGN AND MISCELLANEOUS STOCKS, BONDS, LOANS, AND TRUSTS.

	Closing Prices.	
Argentine, 1868, 6 per cent.	70	72
Bolivia, 6 per cent.	23	24
Brazilian, 1865, 5 per cent.	94	96
Chilian, 1866, 7 per cent.	102	104
City of Providence, 5 p.c. coupon bnds	100	102
Egyptian, 5 per cent. pref.	52¼	53¾
Do., unified debt, scrip	28	28½
Do., 7 per cent., V.M.L.	62	65
Do., 9 per cent. guar.	65	70
Do., K. Daira Sanich	39	41
Foreign and Col. Gov. Trust, 6 p. ct.	64	69
Do., 5 per cent., 2d issue	50	55
Do., 6 per cent., 3d issue	55	60
Do., 1872, 4th issue	50	55
Do., 1873, 5th issue	50	55
Peruvian, 1870, 6 per cent.	14	14½
Do., 1872, 5 per cent	11¾	12¼
Russian, 5½ per cent. L. Mort.		—
Spanish, Quicksilver Mort., 5 p. ct.	97	99
United States Mort., 6 per cent.	98	100

NON-DIVIDEND MINES.

Shares.	Mines.	Paid.	Last wk.	Clos. pr
40000	Aberdaunant, l, Llanidloes*	1 0 0	1¼	1 1¼
10000	Aberystwith,* s-l, Cardigan	5 0 0	—	
80	Albion, l, Cornwall	100 0 0	—	
7800	Alvig. & Burng.,* t, St. Aust.	3 0 0	3	1½ 1¾
12000	Assheton, l, Carnarvonshire*	5 0 0	1¼	¾ 1
50000	Ballycummisk,* c, Schull	2 0 0	—	
12000	Bedford Unit.,* c, Tavist. (1l. liab.)	—	⅝	⅛ ¼
28000	Belstone,* c, Devon (27,000 fy. pd.)	1 0 0	—	
8000	Blaen Caelan,* l, Cardigan	3 0 0	4½	4¾ 5
3937	Blue Hills, t, c, St. Agnes	3 12 6	3¾	3 3¾
30000	Bodidris,* l, bl, Denbighshire	1 0 0	1¼	1 1¼
1000	Bollihope Vale,* s-l, Durham	5 0 0	—	
200	Botallack, t, c, St. Just‡	123 15 0	—	
2000	Bowden Hill,* mn	1 0 0	—	
6000	Bradwell Moss Rake	1 0 0	1	⅞ 1
50000	Cambrian,* s-l, c, Cardiganshire	2 0 0	3	2½ 3
3348	Cargoll, s-l, Newlyn‡	7 4 0	2¼	2 2¼
10000	Caron, l, Cardigan*	2 0 0	2¾	2¼ 2¾
20000	Central Foxdale, l, I. of Man* (2l. sh.)	1 5 0	—	
10000	Central Van,* l, bl, Llanidloes	5 0 0	—	
128	Clementina, l, Llanrwst	20 0 0	—	25 35
7500	Combellack,* t, Wendron	2 0 0	—	
6000	Combmartin, s-l, North Devon	0 7 0	½	¼ ½
24000	Court Grange, s-l, Cardiganshire	1 0 0	1¼	1 1¼
20000	Cwm Dwyfor,* c, s-l, Carnarvonsh	0 18 9	—	
3000	Cwmystwith (New) [5l. shares]	4 0 0	—	
1080	D'Eresby Cons., l, bl, Carnarvon	10 0 0	12½	10 12½
512	D'Eresby Mountain, l, bl, Llanrwst	20 0 0	65	65 75
20000	Denbighshire Consolidated, l*	3 0 0	1	½ 1
12000	Derwent,* l, Durham	4 0 0	2	1½ 2
10000	Dubby Syke, l, Durham*	0 15 0	¼	¼ ⅜
6144	East Caradon, c, St. Cleer‡	2 16 6	1	¾ 1
4000	East Chiverton, l, Perranzabuloe	7 1 0	3	2 3
3000	East Craven Moor*, l, Pateley Bdge	10 0 0	10½	9 10
6000	East Goginan, l, Cardigan	2 0 0	—	
18000	East Van, l, Llanidloes*	5 0 0	6	4¼ 4¾
1722	East Wh. Lovell, t, Helston	9 1 0	1	¾ 1
20000	Elgar,* s-l, Cardiganshire	1 0 0	1¼	1 1¼
8000	Fronvellan, l, Mont.* [4000 sh. fy. pd.]	1 0 0	—	
3950	Gawton, c, Tavistock	4 5 6	¼	⅛ ¼
12000	Glan Clwyd,* l, Gwyddelwern	1 0 0	—	
14000	Glenroy,* s-l, Isle of Man	4 5 0	1	¾ ⅞
10000	Glyn,* l, Llanidloes	2 0 0	⅝	⅜ ⅝
12000	Goginan, & Level Newydd, Card., l	2 10 0	—	
100000	Gold, g, Merionethshire	1 0 0	—	
20000	Goreu,* s-l, Carmarthen	1 0 0	1¼	¾ 1
20000	Gt. E. Foxdale, l, I. of Man (1l. sh)	0 18 0	—	
12000	Great Holway,* l, Flintshire	5 0 0	5½	5 5½
9500	Great Pant-y-Pydew, l, Holywell	2 0 0	—	
256	Gt. Wheal Eleanor, t, North Bovey	1 15 0	2	1¾ 2
10000	Harehope Gill,* l, Durham (£1 sh.)	0 5 0	—	
600	Hartington Moor,* carb. l, Derby	1 0 0	1½	1½ 2
6400	Harwood,* l, Durham	0 15 0	3s.	3s. 4s.
1024	Herodsfoot, l, near Liskeard†	8 10 0	8	7 8
18000	Hingston Down, c, Calstock*†	0 5 0	⅝	½ ⅝
5000	Hush Eisteddfod Minera,* l	2 0 0	—	
200	Islay,* l, Scotland	28 0 0	—	
2500	Killaloe, sl, Tipperary‡	1 0 0	—	
6000	Killifreth, t, Chacewater	2 1 0	⅛	⅛
25000	Kingston Con., s-l, Stoke Climsland	1 0 0	—	
	Ditto, preference	1 0 0	1⅛	1 1⅛
12000	Ladywell,* l, Salop	2 10 0	1	⅞ 1⅛
12000	Ditto, 10 per cent. pref., 1l. each	0 10 0	⅝	½ ⅝
2500	Levant, c, t, St. Just	9 18 6	—	
6000	Livingstone Consols, t, St. Agnes	0 10 0	1	¾ 1
5120	Lovell, t, Wendron	0 16 0	2	1½ 2
25000	Llanrhaiadr, l, Montgomery*	2 0 0	—	
30000	Llanrwst,* l, Carnarvon	2 0 0	4¼	4 4¼
24	Mawston,* l, South Wales	50 0 0	55	55 60
6000	Medlyn Moor, t, Wendron	1 17 4	—	
11000	Melyndwr, l, Cardigan*	3 0 0	1¼	¾ 1¼
11000	Monydd Gorddu, l, Cardigan* (Red.)	5 0 0	—	
12000	Morfa Du, z, g, s, Anglesea	1 0 0	⅞	⅝ ⅞
25000	Nant-y-Ronen, s-l, Cardigan*	1 0 0	—	
15000	Nascent Copper*	1 0 0	—	
4768	New Bronfloyd,* -, Cardigan (5l. sh.)	3 16 0	4½	4⅜ 4½
8000	New Dolcoath, t, c, Camborne*	3 0 0	1⅛	1⅛ 1¼
20000	New East Foxdale, s-l, Isle of Man	0 15 0	—	
13000	New Fowey Consols, t, St. Blazey*	3 0 0	2	1½ 2
1492	New Hendra, t, Breage	3 9 0	—	
3200	New South Merllyn, l, Flint*	2 10 0	1	½ 1
3500	New Tincroft,* t, Lelant	6 0 0	3	2½ 3
5000	New Wheal Emma, c, Buckfastleigh	2 0 0	—	
4000	North Cornwall,* l, Cornwall	5 0 0	5½	5¼ 5½
25000	North Laxey,* Isle of Man	2 0 0	¼	⅛ ¼
2000	North Levant, t, c, St. Just‡	12 8 0	1	¾ 1
20000	North Prince Patrick,* l, Holywell	1 0 0	—	
5936	North Treskerby, c, St. Agnes	5 7 10	—	
2000	North Wheal Towan, t, c, Illogan	1 19 6	—	
6400	Oola Hills,* s-l, Limerick	5 0 0	—	
12000	Pandora,* l, Carnarvon	2 0 0	1	½ 1
6000	Park Valley,* s-l, North Devon	0 4 0	1	¾ 1
16923	Parys Mountain,* c, Anglesea	3 0 0	½	⅜ ½
12000	Phœnix, & W. Phœnix, t, c, Link.§	5 7 3	5	4½ 5
4000	Pateley Bridge, l, Yorkshire	5 0 0	3	3 4
12000	Plynlimmon, l, Llanidloes*	2 0 0	6s.	4s. 6s.
10000	Port Nigel,* s-l, Carnarvonshire	2 0 0	⅛	¼ ⅛
2000	Prideaux Wood, t, Llanivery	5 0 0	—	
5182	Prince of Wales, c, Calstock‡	2 4 0	¼	⅛ ¼
6000	Relistian Consols, c, Gwinear	0 10 0	⅝	½ ⅝
15000	Rookhope, l, Durham*	1 10 0	1	⅞ 1
5000	Silvercross,* c, t, Marazion	1 0 0	—	
4200	Snowbrook, s-l, Montgomery	5 0 0	—	
[illegible]000	So. Cwmystwith, l, Cardiganshire	2 0 0	4	3 4
6000	South Darren, l, Cardigan*	1 10 0	2	1¾ 2
512	South Dolcoath, c, t, Redruth	12 5 0	1⅛	1 1⅛
5000	So. Molton Cons., s-l, No. Devon	0 2 0	1⅛	
18000	South Roman Gravels, l*	1 10 0	⅝	½ ⅝
6000	South Roskear, t, c, Camborne	6 10 0	5	
6000	South Tolcarne, t, c, Camborne	2 11 6	¾	½ ¾
937	South Wheal Crofty, c, Illogan	40 0 10	9	8 9
4500	South Wh. Frances, c, Illogan†	7 12 4	2½	2 2½
6000	St. Lawrence, Amal., l, Flintshire*	2 0 0	—	
10000	St. Patrick, l, Halkin, Holywell*	1 0 0	1⅛	1 1⅛
6000	Success, &c., l, Derb. (12,000l. called)	1 0 0	—	
16000	Sunnyside,* l, Durham	2 0 0	2½	2 2½
30000	Talybont, s-l, Cardiganshire	1 0 0	1¼	1 1¼
6400	Teesdale,* l, Durham	1 0 0	3s.	2s. 4s.
14000	Teign Valley, l, bar., Bridford	1 0 0	—	
10000	Temple, l, Cardigan*	1 0 0	3¾	3¼ 3½
10000	Tolgus Consols,* c, Redruth	5 0 0	5	4 5
12000	Trebeigh Consols, s-l, St. Ive	0 9 6	⅜	¼ ⅜
5000	Treleigh Wood, t, Redruth	6 1 0	—	
12000	Trethellan, s-l, Crantock*	2 0 0	—	
640	Truro*, l, Nerquis, Flintshire	10 0 0	—	
10000	Tyn-y-Fron,* l, Cardigan	1 0 0	1⅝	1⅜ 1⅝
20000	Van Consols, l, Llanidloes*	2 10 0	½	
1000	Vaughan*, l., Cardiganshire	10 0 0	—	
12000	West Assheton, l, Carnarvon	1 0 0	¼	⅛ ¼
6000	West Basset, c, Illogan†‡	6 6 8	¾	½ ¾
5500	West Combmartin, s-l, North Devon	1 0 0	—	
7000	Ditto	0 2 6	—	
3000	W. Craven Moor, l, Pateley Bridge*	10 0 0	10	9 10
5000	West Godolphin, t, c, Breage	2 10 0	1¼	1¼ 1½
12000	West Goginan,* Cardiganshire	2 0 0	⅝	⅜ ⅝
10000	West Llangynog, s-l, Montgomery	2 0 0	—	
3000	West Mary Ann, l, Menheniot	0 3 6	¼	⅛ ¼
50000	West Milwr, s-l, Flint	1 0 0	—	
5000	West of England Granite Company	2 0 0	2	2
20000	West Pateley Bridge, l, Yorkshire	1 0 0	2½	2 2½
1000	West Roskear, t, s-l, bl, c, Camborne	2 0 0	—	
12000	West Tankerville,* l, Salop	3 0 0	—	⅝ ⅞
3000	Ditto, 15 per cent pref.	3 0 0	—	
3000	West Wheal Peevor, t, Redruth	0 10 0	6⅛	
600	West Wheal Seton, c, Camborne†	47 0 0	12	10 12
6000	Wheal Agar, c, Illogan	12 0 0	4¼	4 4½
512	Wheal Basset, c, Illogan‡	26 2 6	8	7 8
6000	Wheal Coates, t, St. Agnes	2 0 0	—	
2635	Wheal Comfort, c, Gwennap	1 5 0	—	
6000	Wheal Crebor, c, Tavistock	4 3 0	¾	½ ¾
5179	Wheal Grenville, c, Camborne*	3 11 6	3½	3 3½
12000	Wh. Mary Hutchings,* t, Plympton‡	1 18 6	3½	3⅜ 3½
3000	Wheal Peevor, t, Redruth	7 11 0	6½	6 6½
12000	Wheal Russell, c, Tavistock	2 1 6	—	
4096	Wheal Uny, t, c, Redruth	14 0 6	1⅛	⅞ 1⅛
2324	White Cliff,* l, Llanrwst	5 0 0	—	
25000	Wicklow, c, sul, i, Wicklow	2 10 0	—	

b, blende; cl, coal; c, copper; g, gold; l, lead; s, silver; sl, slate; s-l, silver-lead; t, tin; z, zinc.

* Limited Liability Companies; † quoted on the Stock Exchange; ‡ have paid dividends.

IRON AND COAL COMPANIES.

Shares.	Company.	Paid.	
£100	Abbot, John, and Co. [L.]	£75 0 0	12
15	Albion Steel and Wire Co. [L.]	14 0 0	
5	Alltami Colliery Co. [L.]	5 0 0	4
100	Ashbury Co. [L.]	90 0 0	55
10	Bagnall, John, and Sons [L.]	10 0 0	2¾
10	Benhar Coal Co. [L.]	10 0 0	1¼
50	Bilbao Iron Ore Co. [L.]	50 0 0	27
10	Bilson & Crump Meadow Coll. Co. [L.]	10 0 0	
4	Blaen Cwmbach Coal Co. [L.]	4 0 0	
50	Blaenavon Iron and Steel Co. [L.]	50 0 0	
100	Bolckow, Vaughan, and Co. [L.]...A	50 0 0	5
50	Bowling Iron Co. [L.]	50 0 0	
50	Britannia Ironworks [L.]	25 0 0	
50	Brown, Bailey, and Dixon [L.]	40 0 0	13
100	Brown, John, and Co. [L.]	70 0 0	13
5	Cakemore Colliery Co. [L.]	5 0 0	
100	Cammell and Co. [L.]	80 0 0	9
20	Cannock and Huntington Coal [L.]	10 0 0	8
10	Cardiff & Swansea St. Coal Co. [L.]	9 0 0	
10	Cardigan Steel and Wire Co. [L.]	8 10 0	⅛
10	Central Swedish Iron and Steel [L.]	10 0 0	1
5	Chapel House Colliery	5 0 0	2¼
50	Charlton Iron Co. [L.]	50 0 0	12
50	Chatterley Iron Co. [L.]	45 0 0	28
10	Chillington Iron Co. [L.]	10 0 0	3¼
10	Consett Iron Co. [L.]	7 10 0	16½
1	Consett Spanish Ore [L.]	1 0 0	¼
50	Cooke, William, and Co. [L.]	40 0 0	32
20	Darlington Iron Co. [L.]	12 10 0	¾
50	Davy Brothers [L.]	22 10 0	2
5	Diamond Fuel Co. [L.]	5 0 0	
32	Ebbw Vale Co. [L.]	29 0 0	21
100	Fox, Samuel, and Co. [L.]	80 0 0	30
10	General Mining Ass. [L.] (£1 returned)	9 0 0	2
20	Great Western Coal Co. [L.]	17 0 0	
2	Gwyngwillim Colliery Co. [L.]	2 0 0	
15	Hopkins, Gilkes, and Co. [L.]	11 0 0	7¼
50	Knowles, Andrew, and Sons [L.]	17 0 0	13¼
10	Llay Hall Coal, Iron, & Firebrick [L.]	10 0 0	2
5	Littledean Woodside Coll. Co. [L.]	5 0 0	
50	Llynvi, Ogmore, & Tondu Co. [L.]	50 0 0	5
10	Lydney and Wigpool Iron Ore [L.]	8 5 0	10
10	Marbella Iron Ore Co. [L.]	10 0 0	7½
6	Mersey Steel and Iron Co. [L.]	5 0 0	
10	Midland Iron Co. [L.]	5 0 0	¼ dis.
5	Mold Argoed Colliery Co. [L.]	5 0 0	3
10	Monkland Iron and Coal Co. [L.]	10 0 0	7½
4	Mwyndy Iron Ore [L.]	3 10 0	
100	Nant-y-Glo and Blaina (8 p.c. pref.)	100 0 0	16
3	Nerbudda Coal and Iron [L. & Red.]	2 0 0	1
20	New Sharlston Collieries [L.] Pref.	20 0 0	17
10	Newport Abercarn Coal Co. [L.]	10 0 0	4
10	Northmptn. Coal, Iron & Wagon [L.]	8 0 0	
10	Northfield Iron Co. [L.]	8 0 0	3¼
1	Norton Green Coal Co. [L.]	1 0 0	
35	Palmer's Shipbuilding and Iron [L.]	25 0 0	15
100	Parkgate Iron Co. [L.]	65 0 0	12
20	Patent Nut and Bolt Co. [L.]	14 0 0	
20	Patent Shaft and Axletree [L.]	10 0 0	½ dis.
20	Pelsall Coal and Iron [L.]	15 0 0	12
50	Phœnix Bessemer Co. [L.]	40 0 0	
50	Rhymney Iron Co. [L.]	50 0 0	18
10	Richards and Co. [L.]	10 0 0	
10	Sandwell Park Colliery Co. [L.]	10 0 0	13
10	Ditto New	5 0 0	2
100	Shotts Iron Co. [L.]	100 0 0	90
100	Sheepbridge Iron and Coal [L.]	55 0 0	20
50	Silkstone & Dodworth Cl. & Iron [L.]	27 0 0	
20	Skerne Ironworks [L.]	20 0 0	15
50	Somorrostro Iron Co. [L.]	50 0 0	
25	South Wales Coal Co. [L.]	21 0 0	6½
100	Staveley Iron and Coal Co. [L.]	60 0 0	13
100	Ditto ditto New	10 0 0	4
10	Swansea Valley Steam Coll. Co. [L.]	6 0 0	
100	Thames Iron Company	100 0 0	
50	Tredegar Iron and Coal Co. [L.]	20 0 0	11
25	Ditto B. shares	25 0 0	21
20	Ulverston Mining Co. [L.]	12 0 0	5
10	Vancouver Coal [L.]	6 0 0	1½
100	Vickers, Sons, & Co. [L.]	100 0 0	30
50	Welsh Ironworks Co. [L.]	50 0 0	
25	W. Cumberland I. and Steel [L.]	20 0 0	13
10	West Mostyn Coal [L.] (12 p.c. pref.)	5 0 0	
5	West Swansea Colliery Co. [L.]	5 0 0	
10	Whitehaven Iron Co. [L.]	10 0 0	
100	Wigan and Whiston Coal Co. [L.]	70 0 0	
100	Wigan Coal and Iron Co. [L.]	75 0 0	

WAGON COMPANIES.

10	Birmingham Wagon Co. [L.]	10 0 0	17¼
10	Ditto, 2nd issue	4 0 0	3
10	Ditto, pref., 6 per cent.	10 0 0	12
20	British Wagon Co. [L.]	10 0 0	par
10	Gloucester [L.]	10 0 0	9
10	Ditto, 5th issue	5 0 0	1
10	Met. Rail. Car. and Wagon Co. [L.]	5 0 0	3¼
5	Ditto, pref., 6 per cent.	5 0 0	5¼
10	Midland	10 0 0	7
20	North Central Wagon Co.	20 0 0	27¼
5	Rail. Car. [L.] (Oldbury)	5 0 0	6
5	Ditto, pref., 6 per cent.	5 0 0	5
20	Sheffield Wagon Co. [L.]	15 0 0	3¼
10	Yorkshire Wagon Co. [L.]	10 0 0	4½

TELEGRAPH COMPANIES.

"St."	Anglo-American	100 0 0	61
10	Brazilian Submarine	10 0 0	6¼
20	Direct United States Cable	20 0 0	12¾
10	Eastern	10 0 0	7¼
10	East. Exten., Australia and China	10 0 0	7⅜
10	Great Northern	10 0 0	7⅜
25	Indo-European	25 0 0	19
10	Mediterranean Extension	10 0 0	2¼
8	Reuters	8 0 0	9½
Stk.	Submarine	100 0 0	220
10	West India and Panama	10 0 0	2¼
20	Western and Brazilian	20 0 0	4¼
$1000	Western Union, 7 per cent. Mort. Bonds	$1000	113

MISCELLANEOUS.

Stk.	Atlantic and Great Western Leased Lines, Rental Trust	100 0 0	38
25	Australian Agricultural	21 10 0	83
25	Austral. Mort. Land and Finance [L.]	5 0 0	6¼
10	Avonside Engine [L.]	7 0 0	5
Stk.	Baltimore and Ohio, 6 per cent.	100 0 0	105
10	Brighton Aquarium [L.]	10 0 0	9½
Stk.	Cent. of New Jersey Con. Mort.	100 0 0	66
Stk.	Cent. Pacific of Calif., 1st Mort. 6 p.c.	100 0 0	103¼
25	City of London Real Property [L.]	12 0 0	1¼
5	Diamond Rock Boring	4 10 0	2¼
15	English and Foreign Credit	8 0 0	
16	Fore Street Warehouse [L.]	14 0 0	10½
15	Foster, Porter, and Co. [L.]	10 10 0	10
5	Gen. Phos. & Chem. Works Co. [L.]	5 0 0	
1	Greenhill [L.]	1 0 0	
5	Kit Hill Tunnel [L.]	1 0 0	
17	Hudson's Bay Company	17 0 0	10
10	Huntington Copper and Sul. Co.	9 0 0	8¼
Stk.	Illinois Central, $100 shares	100 0 0	75
Stk.	Illinois & St. Louis Bridge, 1st Mort.	100 0 0	96
Stk.	Ditto, 2nd Mort., 7 per cent.	100 0 0	40
Stk.	Illinois Cent. Sinking Fund, 5 p. cent.	100 0 0	100
Stk.	Ditto, 6 per cent.	100 0 0	109
7½	Imperial Credit [L.]	7 10 0	7¼
—	Ditto, Surplus Certificate	—	6
Stk.	Lehigh Val. Con. Mort., A, 6. p. cent.	100 0 0	99
10	Milner's Safe [L.]	10 0 0	7¾
25	National Discount [L.]	5 0 0	9½
Stk.	N. Cent. Rail. Con. Mort., 6 per cent.	10 0 0	80
10	Pawson and Co. [L.]	8 0 0	¼ dis.
50	Peninsular and Oriental Steam	50 0 0	38
Stk.	Pennsyl. Gen. Mort. 6 p. cent., 1910	100 0 0	106
Stk.	Ditto, Con. Sink. Fund, 6 p. ct., 1905	100 0 0	91½
Stk.	Scottish Aust. Investment Company	100 0 0	190
Stk.	Ditto, 6 per cent. Preference	100 0 0	125
10	Silber Light (ord. sh.)	10 0 0	
20	Suez Canal shares	20 0 0	
12	Telegraph Construc. & Mainte. [L.]	12 0 0	28
5	Ditto, Second Bonus Three per Cents	5 0 0	3¼
10	Tharsis Sulphur and Copper Co.	10 0 0	22½
Stk.	Union Pacific Land Grant, 1st Mort.	100 0 0	103
Stk.	Union Pacific Railway, 1st Mort.	100 0 0	106

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